AD NUMBER

AD382413

CLASSIFICATION CHANGES

TO: unclassified

FROM: confidential

LIMITATION CHANGES

TO:

Approved for public release, distribution unlimited

FROM:

Distribution: DoD only: others to Director, Naval Research Lab., Washington, D. C. 20390.

AUTHORITY

NRL ltr, 19 Jun 2002; NRL ltr, 19 Jun 2002

SECRET

NRL Memorandum Report 1184

Copy No.

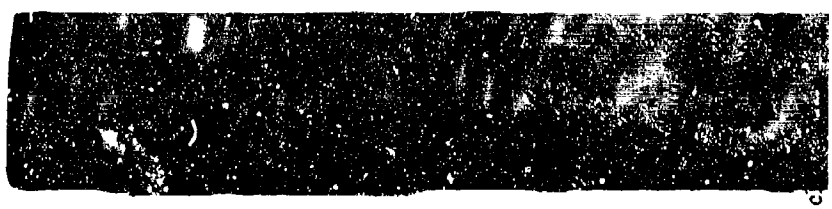
PREDICTION OF FIELD STRENGTHS OF NSS AND NAA VLF TRANSMISSIONS

(UNCLASSIFIED TITLE)

W. E. Garner, F. J. Rhoads
E. J. Elwood, III, and R. L. Schauer

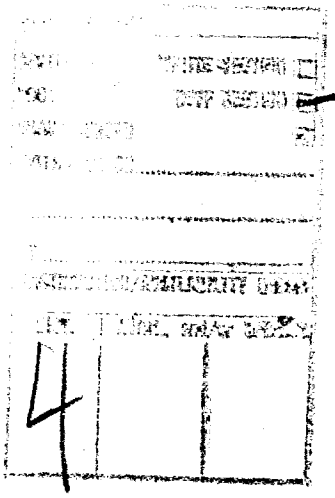
RADIO DIVISION

28 June 1961



U. S. NAVAL RESEARCH LABORATORY
Washington, D.C.

SECRET



SECURITY

This document contains information affecting the national defense of the United States within the meaning of the Espionage Laws, Title 18, U.S.C., Sections 793 and 794. The transmission or the revelation of its contents in any manner to an unauthorized person is prohibited by law.

SECRET

NRL MEMORANDUM REPORT 1184

PREDICTION OF FIELD STRENGTHS OF NSS AND NAA VLF TRANSMISSIONS (U)

(UNCLASSIFIED)

(Interim rept.,)

By

W. E. Garner, F. J. Rhoads
E. J. Elwood, III, and R. L. Schauer

Communication Branch
Radio Division

28 June 1961

80p.

NRL-MR-1184

U. S. NAVAL RESEARCH LABORATORY
WASHINGTON 25, D. C.

SECRET

(251950)

SECRET

CONTENTS

LIST OF FIGURES

LIST OF FIGURES (Cont)

LIST OF TABLES

LIST OF TABLES (Cont)

LIST OF TABLES (Cont)

LIST OF TABLES (Cont)

DISTRIBUTION

BUSHIPS

Code 687H 150

ABSTRACT

The Naval Research Laboratory has been conducting an investigation of the VLF communications reliability in proposed Polaris launching areas. Long-term statistical propagation data have been recorded in the vicinity of the areas of interest along with short-term special experimental investigations. These data form the basis of this report which presents the necessary information for calculating the predicted field strengths of transmissions from NSS (22.3 Kc) and NAA (14.7 or 14.8 Kc) into the Norwegian Sea and surrounding areas. The field strengths can be calculated based on the time of day reception is desired, the reliability required, and, for submerged reception, the depth of the antenna in sea water.

PROBLEM STATUS

This is an interim report, work is continuing on the problem.

AUTHORIZATION

NRL Problem No. 54R01-33
Bureau of Ships Problem S-1888

PREDICTION OF FIELD STRENGTHS OF NSS AND NAA VLF TRANSMISSIONS

INTRODUCTION

The Radio Division of the Naval Research Laboratory has been conducting an investigation of the very low frequency (VLF) communications reliability, in the vicinity of proposed Polaris launching areas, since the fall of 1958. The field strengths of VLF transmissions and atmospheric noise have been continuously recorded at several shore sites chosen for their proximity to proposed launching areas. The sites chosen for these recording stations, which have been in operation for varying periods of one year or more, were Hammerfest, Bodø, and Varhaug, Norway; Rome, Italy; and Haifa, Israel. The stations at Hammerfest (northern Norway), Varhaug (southern Norway), and Haifa are still in operation and a station in Karachi, West Pakistan was installed in June 1961. In addition to these continuously recording sites, data have been obtained over short periods at many Arctic locations and aboard aircraft flying in the Arctic, European, and Near Eastern areas. Special VLF transmissions have been made at various frequencies from 14.7 to 26.1 Kc, and the field strengths of these transmissons were recorded at many Arctic sites in North America, Greenland, and Norway, and aboard an airplane flying in these areas.

Through analysis and correlation of these data, preliminary results have been obtained for the following: (a) the medians of the field strengths of VLF transmissions and their diurnal and seasonal variations in the areas of interest; (b) attenuation coefficients for and boundaries of significantly different ground conductivity areas; and (c) the effects of auroral and polar cap absorption events on VLF propagation. Application of the propagation path information and experimentally determined coefficients to VLF propagation equations, allows one to extrapolate or interpolate the statistical results to other areas. This report is the

result of such an application of the Naval Research Laboratory VLF propagation study, often referred to as the NRL-VLF Project.

This report presents field strength contours, statistical information, and other parameters for determining the expected field strengths of VLF transmissions in the vicinity of the Norwegian Sea from Naval Radio Stations NSS (22.3 Kc) located at Annapolis, Maryland and NAA (14.7 or 14.8 Kc) at Cutler, Maine. A report[1], prepared by another division at NRL and based on the same data source, was published in July 1960 and covered the same area, but was for transmissions from NSS on 15.5 Kc. A letter from the Director, Special Projects, stated that this report, which was based on a small amount of data available at the time, was found to be conservative, and requested NRL to publish a report based on more recent information from NSS transmissions on 22.3 Kc and to include a prediction for the NAA coverage.

The method of determining the predicted field strength in any particular area of the Norwegian Sea is somewhat different than that employed in the original report[1]. It is believed that this new approach will yield a more precise prediction.

APPROACH

The information contained herein is based on experimental data obtained in the vicinity of the Norwegian Sea. Long-time recordings of the field strength of VLF transmissions at shore sites were used to statistically determine the median field strengths for the various hours of the day, and the probability distribution of the field strengths when the entire propagation paths were under daylight, night, and transition conditions. Applying these reference points, and experimentally determined attenuation coefficients and ground conductivity boundaries to the VLF waveguide mode theory[2] equations, enabled field strength contours referenced to a one kilowatt radiated power, to be drawn in the Norwegian Sea area.

Charts are provided for determining whether the propagation path from either NSS or NAA is under daylight, night, or transition conditions at the time that it is desired to receive the particular transmission. Probability distribution curves, referred to as reliability curves, are provided then, for each of the three solar conditions of the transmission path. Having such data for each condition greatly increases the precision of the coverage prediction. Since the field strength is normally higher at night than during the day, the probability data used in the previous report[1] was optimistic during daylight conditions and pessimistic during night conditions with all twenty-four hour data lumped together.

The effect of submergence of the receiving antenna in sea water is also presented in graphical form. The addition of the appropriate contour and probability factor for the particular reception location, the necessary antenna depth factor, and the factor for actual radiated power gives the predicted field strength of the particular transmission at the location of the receiving antenna.

Geographical Area Covered

The area of primary interest, at this time, for Polaris submarine patrol, is the Norwegian Sea. This report primarily covers that area, but in addition, portions of the North Atlantic and Arctic Oceans, and the Barents and North Seas are also included. Field strength contours are drawn for the entire area, but it is not to be inferred that the entire area is covered by reliable VLF communication. The contours presented here are intentionally terminated about 100 miles from the trailing shore of each land mass to avoid the launch and discontinuity factors. Therefore, interpolation of the contours close to the land areas may result in considerable errors.

Transmitting Facilities

The field strength prediction information included in this report is for transmissions from the Naval Radio Stations NSS at Annapolis, Maryland and NAA at Cutler, Maine operating on frequencies of 22.3 and 14.7 or 14.8 Kc, respectively. The contour charts presented are

based on a reference radiated power of one kilowatt. Therefore, to determine the field strength of either transmission the actual radiated power of the transmitter must be known. The NSS transmitting station changed operating frequency from 15.5 Kc to 22.3 Kc in the latter part of December 1960. The average radiated power from NSS on 22.3 Kc from that time through April 1961 was 126 KW or 21db above 1 KW. At the writing of this report, the NAA station was still undergoing acceptance tests and the actual average radiated power under operational conditions, naturally, has not been determined. However, from information available, the antenna efficiency is apparently between 50 and 60 percent at the operating frequency of 14.7 or 14.8 Kc, and therefore, assuming one megawatt or 30 db above 1 KW is a good approximation with probably better than ± 1db accuracy. The graph presented in Fig. 1 is used to convert radiated power to db above 1 KW and this is referred to as P_r.

Portions of the Arctic Ocean and Barents Sea are served well by the transmissions from NPM in Hawaii. It is planned that more of these coverage prediction reports will be published covering additional areas and other transmissions.

Experimental Data Available

The VLF propagation data recorded continuously for long periods are being published in quarterly reports[3,4,5,6]. That data already published, and the data yet to be published through March 1961, along with the results of the special short term experiments in the Arctic, were used as the basis for this report. All the statistical data is based on results from NSS transmissions, since no data is yet available from NAA transmissions. However, much information has been obtained on the NSS transmissions at 15.5 Kc, and since there is little difference in this and the NAA operating frequency and the propagation paths of the two transmitters to the Norwegian Sea, little error should result from the extrapolation. Some of the propagational effects are greatly different, however, for transmission frequencies of 15.5 and 22.3 Kc. Therefore since NSS has been transmitting on 22.3 Kc only since

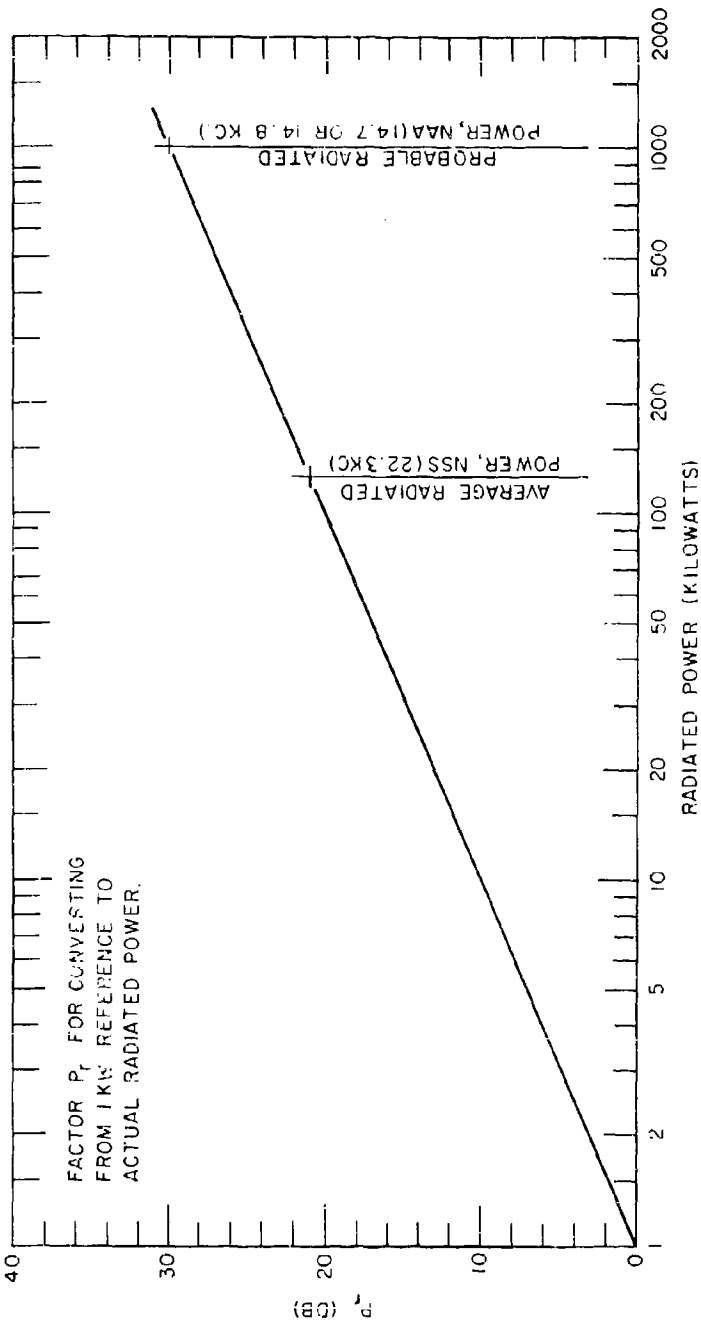


Figure 1 - Factor P_r as a function of transmitter radiated power using a reference of 1 KW

approximately January 1961, a limited amount of statistical information is available for that frequency. Also, the Hammerfest recording station has operated only a relatively short time, and since the daytime signal levels from NSS were normally undetectable on 15.5 Kc, a relatively small amount of data is available for that area particularly for daylight path conditions.

Atmospheric Noise

The field strength of atmospheric noise at VLF is continuously recorded along with the VLF transmission at the ground stations in Europe and Asia. These data are also published in the quarterly reports[3,4,5,6]. This report does not include the limiting effect of atmospheric noise. For the northern area covered herein, and for reception aboard a submarine, it is believed that in most instances the local man-made noise or receiving system sensitivity will be the limiting factors except during the relatively infrequent local thunder storms.

DETERMINATION OF FIELD STRENGTH

As previously stated, the waveguide mode theory equations were used for determining the field strength contours. The equation used, which is a simplified form derived by Watt and Plush[7] and applicable for distances beyond 2000 kilometers, is

$$E = K + P_r - 10 \log_{10} f - 10 \log_{10} (a \sin d/a) - \alpha d/1000 \qquad (1)$$

where E is the vertical electric field strength in db relative to 1 μv/m at a distance d in kilometers from the source, K is a constant which equals 97.5 for day paths assuming an ionospheric height of 70 Km and equals 94.8 for night paths where the height of the ionosphere is assumed to be 90 Km, P_r is the radiated power in db relative to 1 KW, f is the frequency in kilocycles, a is the earth's radius, and α is

the attenuation rate in db per megameter. The last term of the equation must, of course, be separated into as many terms as there are significantly different ground conductivities traversed by the propagation path.

In the following four sections are discussed the various factors required for calculating the predicted field strength, at the particular receiving location, and under the particular conditions at the time of desired reception. The application of these factors is detailed in the section entitled Calculation of Field Strength.

Field Strength Contours

The field strength contours for NSS (22.3 Kc) and NAA (14.7 or 14.8 Kc) transmissions in the Norwegian Sea are presented in Figs. A1 and B1, in Appendices A and B, respectively. These contours were calculated to indicate the vertical electric field strength in db relative to 1 μv/m above the surface of the water, for a 50 percent probability (reliability), during daylight propagation path conditions, and for a radiated power of 1 KW. This means that for all receiving locations above the surface of the sea everywhere along the "20" contour of either Fig. A1 or B1, for example, the field strength of 20db above 1 μv/m, which is 10 μv/m, is exceeded 50 percent of the time during daylight conditions along the entire propagation path, when the appropriate transmitter is radiating 1 KW. Of course, the VLF transmitters radiate much more than 1 KW and this will be taken into account in the final calculation.

Submerged Reception

As previously stated, the contours presented in Figs. A1 and B1 predict the field strength above the surface of the water. Therefore, for submerged reception, these predicted field strengths must be reduced by a factor related to the attenuation of sea water for the particular transmission frequency. Such is given in Figs. A2 and B2. In these figures the depth factor, D_L, is plotted as a function of the depth of the receiving antenna in sea water. Figures A2 and B2 are

based on an attenuation in sea water, of 3.6×10^{10} e.s.u. conductivity, of 1.29 db per foot at 14.7 or 14.8 Kc and 1.58db per foot at 22.3 Kc.

Reliability

The term "reliability" is used in the same way as probability is used in statistics. As used, the term "reliability" means the percentage of time that a particular field strength reference value is exceeded. That is, a 90 percent reliability means that the reference level is exceeded 90 percent of the time under the particular condition.

Curves are presented for determining the reliability factors which must be used to modify the contour predictions for different reliabilities desired, the solar condition of the propagation path, reception area, and, where sufficient statistical data is available, for the time of year. The diurnal variation of VLF field strengths appears to increase as more of the propagation path traverses areas of lower conductivity. The attenuation rate during daylight conditions is considerably higher for such paths while the rate at night is much less by comparison. Simultaneous recordings of the field strength of NSS transmissions on 15.5 Kc at Hammerfest and Bodø, Norway demonstrate this point very well. The hourly field strengths of atmospheric noise at the two locations were very nearly equal during the periods of observation. The field strengths of the NSS (15.5 Kc) transmissions were only slightly lower at Hammerfest than at Bodø during all night conditions. During daylight conditions all along the path, however, the transmissions were undetectable at Hammerfest but well above detectability at Bodø. Although the great circle paths from NSS to Hammerfest and Bodø differ only slightly in bearing, the former includes nearly three times as much Greenland icecap as the latter. Others[8] have found that VLF propagation paths vary from the great circle route, and, if the NSS to Hammerfest path deviated toward the south-east, then that path could be very nearly the same as the NSS to Bodø path. However, this would have to be a consistent deviation during night conditions and Whitson[8] reported random variations for any one path.

The NRL data have been consistent in showing the dependence of diurnal variations with ground conductivity. Therefore the maps in Figs. A3 and B3 are presented to show three receiving areas in the Norwegian Sea, the transmission paths to which traverse significantly different distances of poor ground conductivity. Figures A3 and B3 are to be used in conjunction with Figs. A4 through A6 and B4 through B 12. These latter two groups of graphs give the reliability factors, R_p, which account for the field strength reliability (probability) desired, the solar condition of the transmission path (diurnal variations), and all known seasonal variations.

Referring to Figs A3 through A6 and B3 through B12, the amount of statistical data available for the two transmission frequencies in the three receiving areas is reflected. Data for the NSS transmissions on 22.3 Kc have been recorded and analyzed from January through April 1961. Therefore, the seasonal effects on these transmissions are not yet known and these data, for the present, must form the basis for prediction throughout the year. Since the data were recorded during winter conditions, it is probable that predictions based on that should be somewhat pessimistic for other seasons. The same general statements hold true for the data presented in Figs. B3 through B12 where, in general, more data exists except in the northern receiving area "C". Some of the reliability curves say "estimated". Such curves are based on very limited data or simply estimated from the trends of other data.

Solar Conditions of Transmission Paths

Another known factor which affects VLF propagation is the height of the ionosphere. This is controlled to a great degree by the sun's illumination of the ionosphere. The effective height for VLF propagation is approximately 70 Km during the day and about 90 Km at night. This raising and lowering of the ionosphere produces the diurnal variation in VLF field strengths at great distances as discussed previously.

If the condition of the ionosphere all along the transmission path were known, the precision with which the field strength at the receiving location could be predicted would be greatly increased. Knowing whether the ionosphere along the path is illuminated by the sun or in darkness or between the two (transition) increases the predictability considerably. Tables A1 through A20 and B1 through B20 have been prepared so that the solar condition of the ionosphere along the NSS and NAA transmission paths into the Norwegian Sea can be determined. Each set of tables is for a particular transmitter and each table in a set is for a particular receiver location. Each receiving location, covering the Norwegian Sea and surrounding areas, includes an area of ± 2.5 degrees of latitude and ± 5 degrees of longitude. The solar conditions over such an area are not significantly different. From these tables can be determined the solar condition of the NSS or NAA path to the particular receiver location for each hour of the day (ZULU, GMT) and each day of the year tabulated in approximately ten day groups. Table 1 is an index for determining which solar condition table to use for the particular receiving location.

TABLE 1

INDEX TO TRANSMISSION PATH SOLAR CONDITION TABLES*

	Longitude				
Latitude	25°W-15°W	15°W-5°W	5°W-5°E	5°E-15°E	15°E-25°E
52.5°N-57.5°N	1	2	3	-	-
57.5°N-62.5°N	4	5	6	-	-
62.5°N-67.5°N	7	8	9	10	-
67.5°N-72.5°N	11	12	13	14	15
72.5°N-77.5°N	16	17	18	19	20

* For NSS transmission paths use Solar Tables prefixed by A, that is A1, A2,...,A20.
For NAA transmission paths use Solar Tables prefixed by B, that is B1, B2,..., B20.

The letters N or D indicate whether the entire path is in night or day condition. The dash indicates transition period from day to night or night to day. The tables are entered from the left for the time of desired reception (± 30 Min) and from the top for the date, and at the intersection of the two, the symbol indicates the solar condition.

The solar condition tables were calculated to approximate the solar condition of the ionosphere based on the sunrise and sunset times at approximately the height of the ionosphere.

Calculation of Field Strength

The predicted field strength at any location in the Norwegian Sea is calculated from a simple equation (2) by the application of the various factors discussed in the preceding sections.

$$E = P_r + C + D_L + R_p \qquad (2)$$

where

E = the field strength in db relative to 1 μv/m

P_r = the factor for actual transmitter radiated power relative to 1 Kw, obtained from Fig. 1.

C = the contour number obtained from Fig. A1 or B1.

D_L = the depth factor for submerged reception, obtained from Fig. A2 or B2.

R_p = the reliability factor obtained from Figs. A4 through A6 or B4 through B12.

The value of field strength, E, thus obtained, can be converted to microvolts per meter by the use of Figure 2.

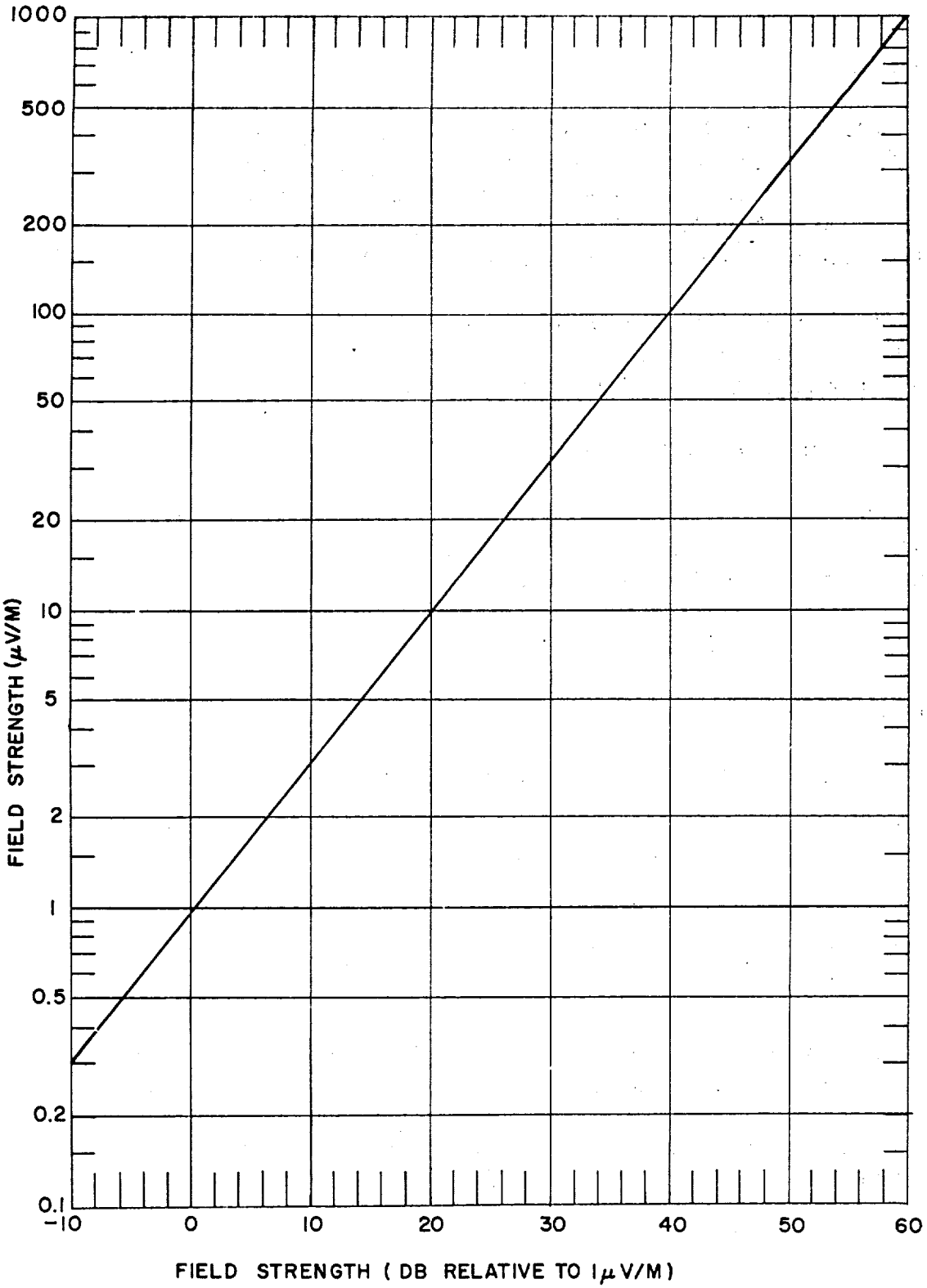


Figure 2 - Field strength in microvolts per meter versus db relative to 1 μv/m

When inserting the values for each term in equation (2) above, the signs of the various factors should be carefully noted.

The primary purpose of this report is to present the necessary information for predicting the VLF field strengths of NSS and NAA in the Norwegian Sea and not simply to indicate the boundaries of reception under various conditions. Such boundaries are determined by the factors discussed herein plus the sensitivity of the receiving system being used. Experience has shown that a properly functioning BRR-3 receiver, operating from a buoy mounted loop antenna, has a system sensitivity of about 5 μv/m for CW reception. Some slow data rate systems operating from the same antenna have about a 20db better sensitivity than this or about 0.5 μv/m.

The following are examples of field strength calculations:

EXAMPLE 1

Conditions:

a. Transmitter: NSS (22.3 Kc)
b. Receiver location: 63°15'N-4°30'W
c. Loop antenna submerged 20 feet
d. Reception desired on 5 August at 1600 Z with 90 percent reliability

Solution:

The average radiated power from NSS on 22.3 Kc is 126 Kw. From Fig. 1, for a radiated power of 126 Kw

P_r = + 21db

Referring to Fig. A1 for the receiver location given above, the contour factor is

C = + 30db

From Fig. A2 the depth factor for a loop antenna submerged 20 feet in sea water is

$D_L = -31.6$ db

From Fig A3 it is found that the receiving location is in receiving area "A".

Table A 2 gives the solar conditions for the NSS transmission path into the area including the receiving location for 5 August at 1600 Z as being daylight conditions (D). Then referring to Fig. A4 for "day" conditions and a reliability of 90 Percent, the reliability factor is found to be

$R_p = -11.3$db

Therefore applying equation (2), the field strength, E, at the receiving loop location and under the conditions stated is

$E = P_r + C + D_L + R_p$

$= 21 + 30 - 31.6 - 11.3$

$= +8.1$db relative to 1 μv/m

From Fig. 2 a field strength of + 8.1db relative to 1 μv/m is 2.5μv/m.

EXAMPLE 2

Conditions:

a. Transmitter: NAA (14.7 or 14.8 Kc)
b. Receiver location: 73°45'N-3°0'E
c. Loop antenna submerged 20 feet
d. Reception desired on 16 November at 0345 Z with 95 percent reliability.

Solution:

The probable average radiated power from NAA on 14.7 or 14.8 Kc is 1000 Kw or 1 megawatt. From Fig. 1, for a radiated power of 1000 Kw

$P_r = +30db$

Referring to Fig. B1 for the receiver location given, the contour factor is

$C = -2db$

From Fig. B2 the depth factor for a loop antenna submerged 20 feet in sea water is

$D_L = -25.8db$

From Fig. B3 it is found that the receiving location is in receiving area "C". Table B18 gives the solar conditions for the NAA transmission path into the area including the receiving location for 16 November at 0400 Z ± 30 minutes (receiving time 0345 Z) as being nighttime conditions (N). Then referring to Fig. B12 for "night" conditions and a reliability of 95 percent, the reliability factor is found to be

$R_p = +28db$

Therefore, applying equation (2), the field strength, E, at the receiving loop location and under the conditions stated is

$$E = P_r + C + D_L + R_p$$

$$= 30 - 2 - 25.8 + 28$$

$$= +30.2db \text{ relative to } 1 \mu v/m$$

From Fig. 2 a field strength of + 30.2db relative to 1 μv/m is 32.4 μv/m.

If all conditions were the same except that reception was desired at 1300 Z, which would be during daylight conditions, R_p would be - 3.7db, and the field strength, E, would be - 1.5db relative to 1 μv/m or 0.84 μv/m.

Boundaries of Reliable Reception

If certain conditions are assumed and sensitivities assigned to the receiving systems, then the boundaries of reliable reception from NSS (22.3 Kc) and NAA (14.7 or 14.8 Kc) can be established.

Assuming a submerged antenna depth of 20 feet, and a reliability for at least 95 percent for all times of the year, approximate boundaries can be established as follows:

For NSS (22.3 Kc)

If the receiving system sensitivity were 5 μv/m, then reception in any area with a contour number greater than + 37db would have the required reliability. If the sensitivity were 0.5 μv/m, the boundary would be at the +12db contour since it would be in a different receiving area.

For NAA (14.7 or 14.8 Kc)

For a 5 μv/m sensitivity, the stipulated reliability would be attained for any area with a contour number greater than + 29db, and + 9db for a 0.5 μv/m sensitivity.

APPENDIX A
DATA FOR THE CALCULATION OF THE FIELD STRENGTH OF NSS (22.3 Kc) TRANSMISSION

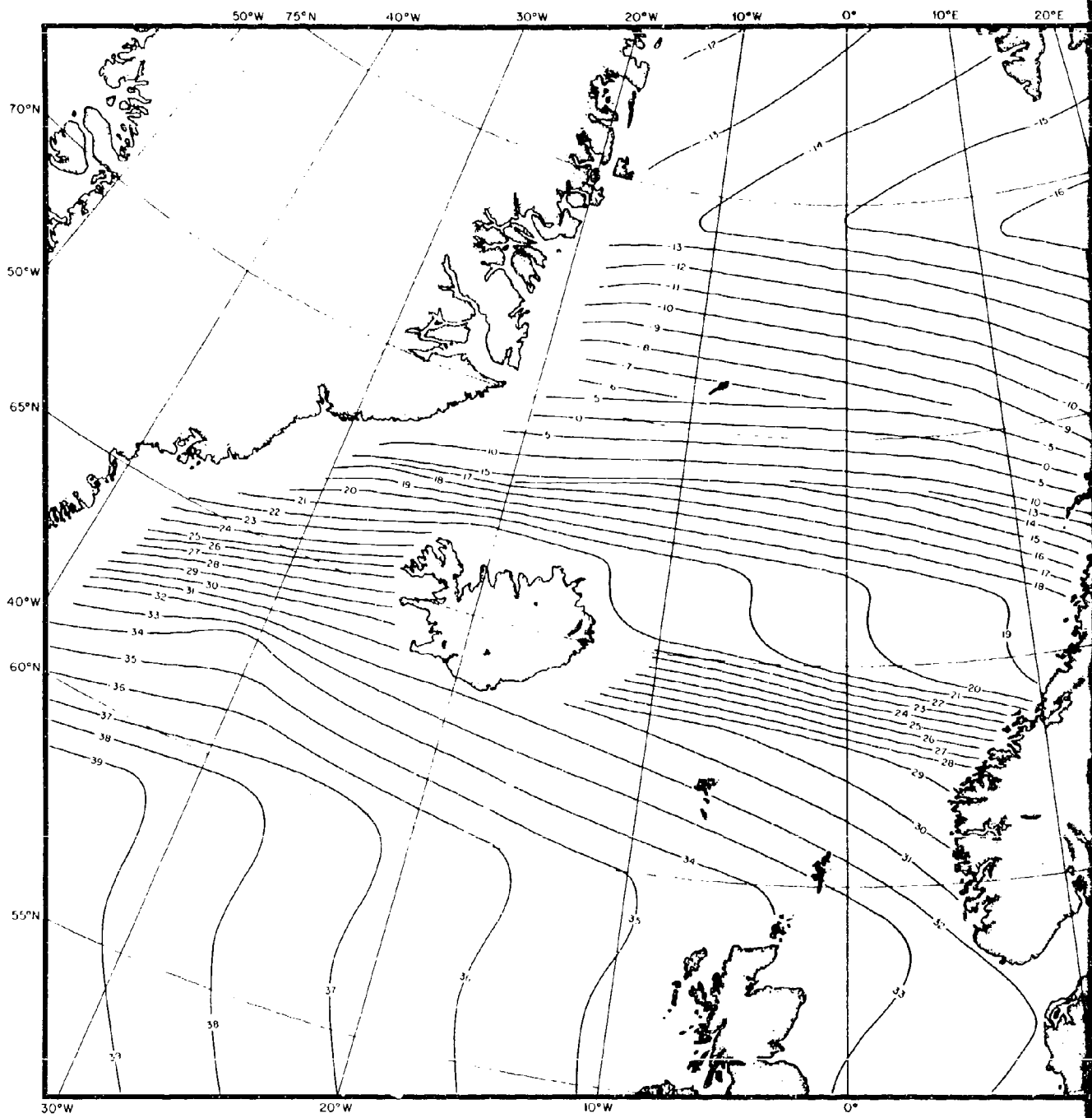
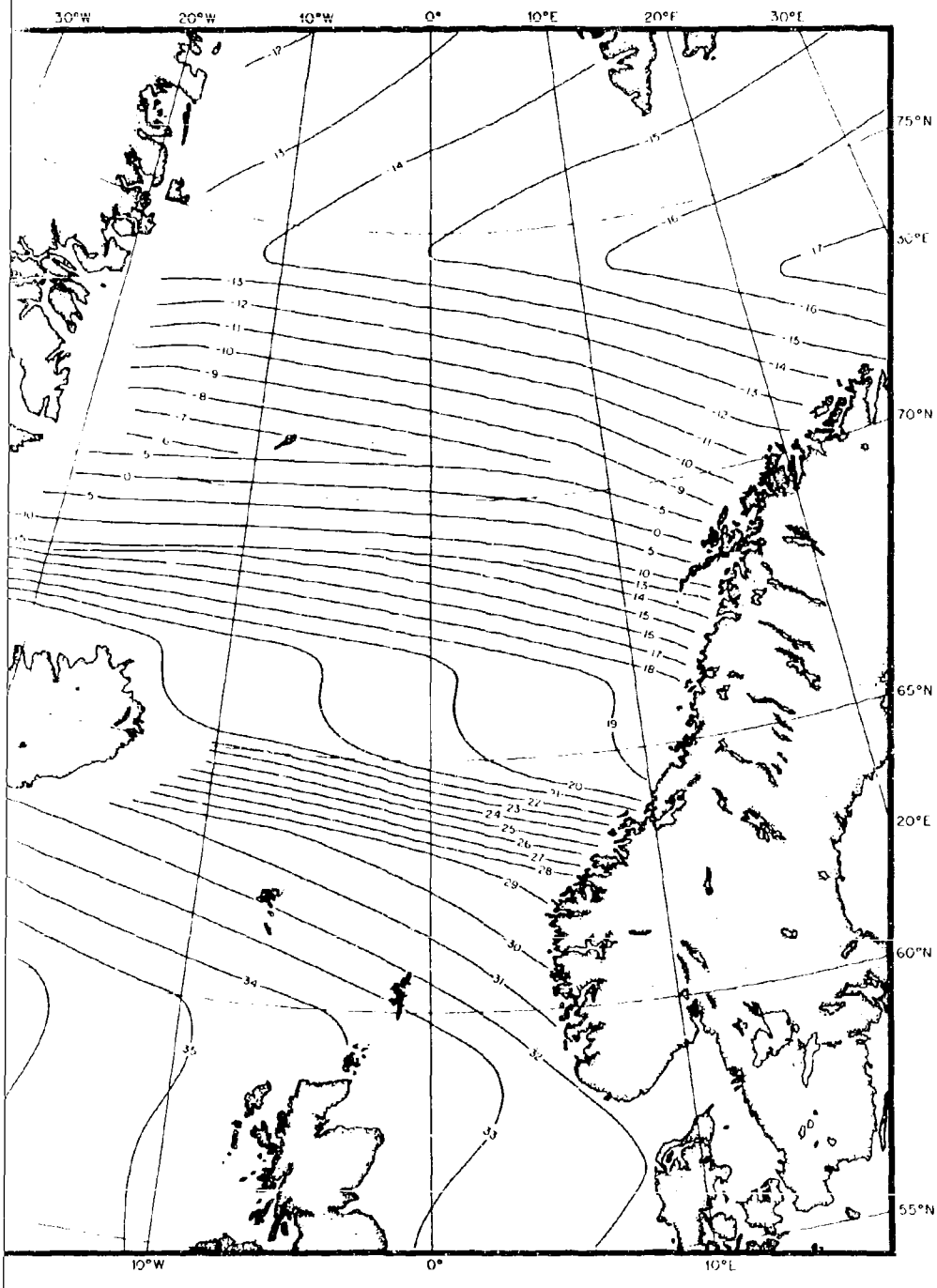


Figure A1 - Field Strength contour map of the Norwegian Sea and surroundings for transmission from NSS (22.3 Kc)

APPENDIX A

E CALCULATION OF THE FIELD STRENGTH
F NSS (22.3 Kc) TRANSMISSION



Strength contour map of the Norwegian Sea and
undings for transmission from NSS (22.3 Kc)

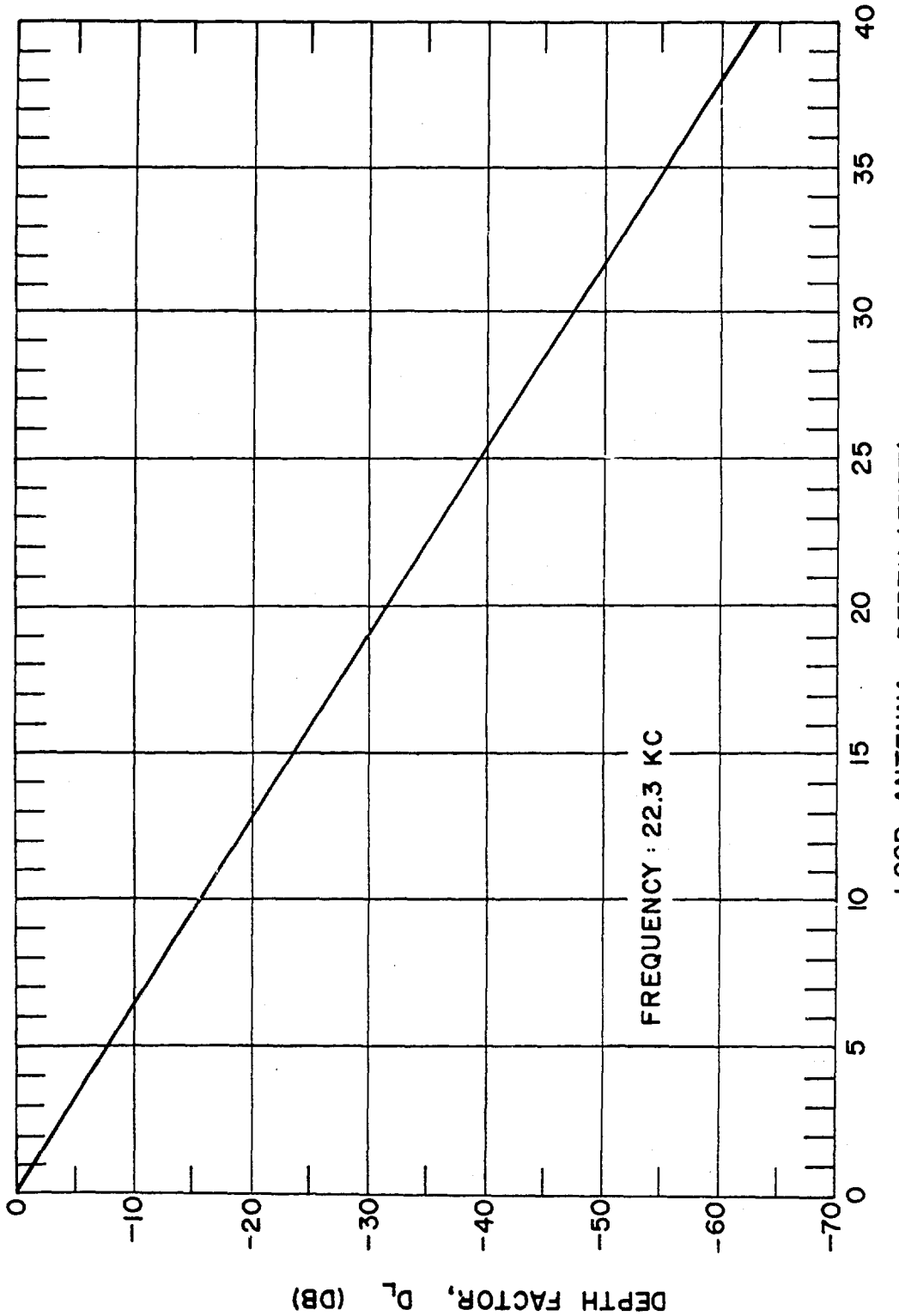


Figure A2 - Depth factor, D_L, as a function of receiving antenna depth in sea water of 3.6×10^{10} e.s.u. conductivity for NSS (22.3 Kc) transmissions

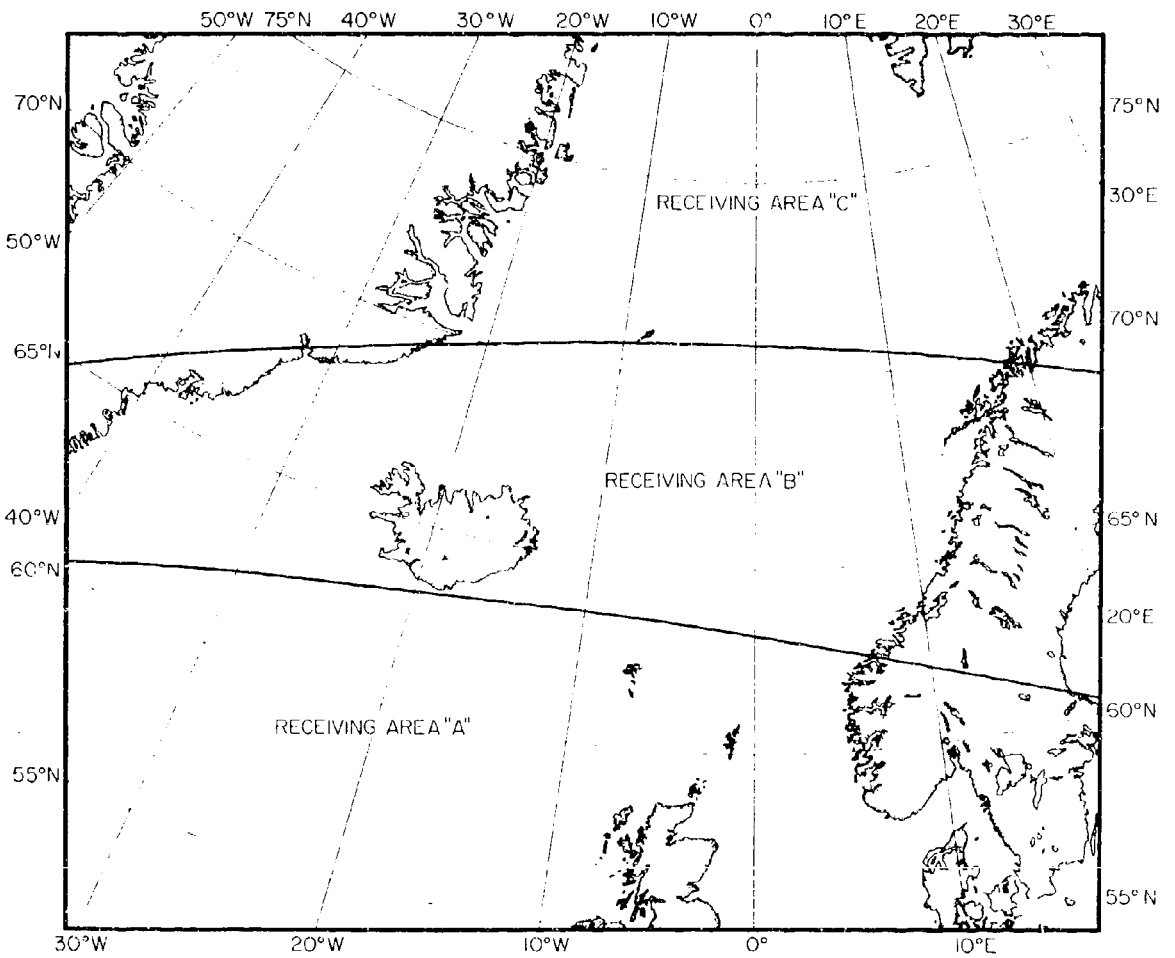


Figure A3 - NSS receiving areas in Norwegian Sea, the transmission paths to which traverse significantly different distances of poor ground conductivity

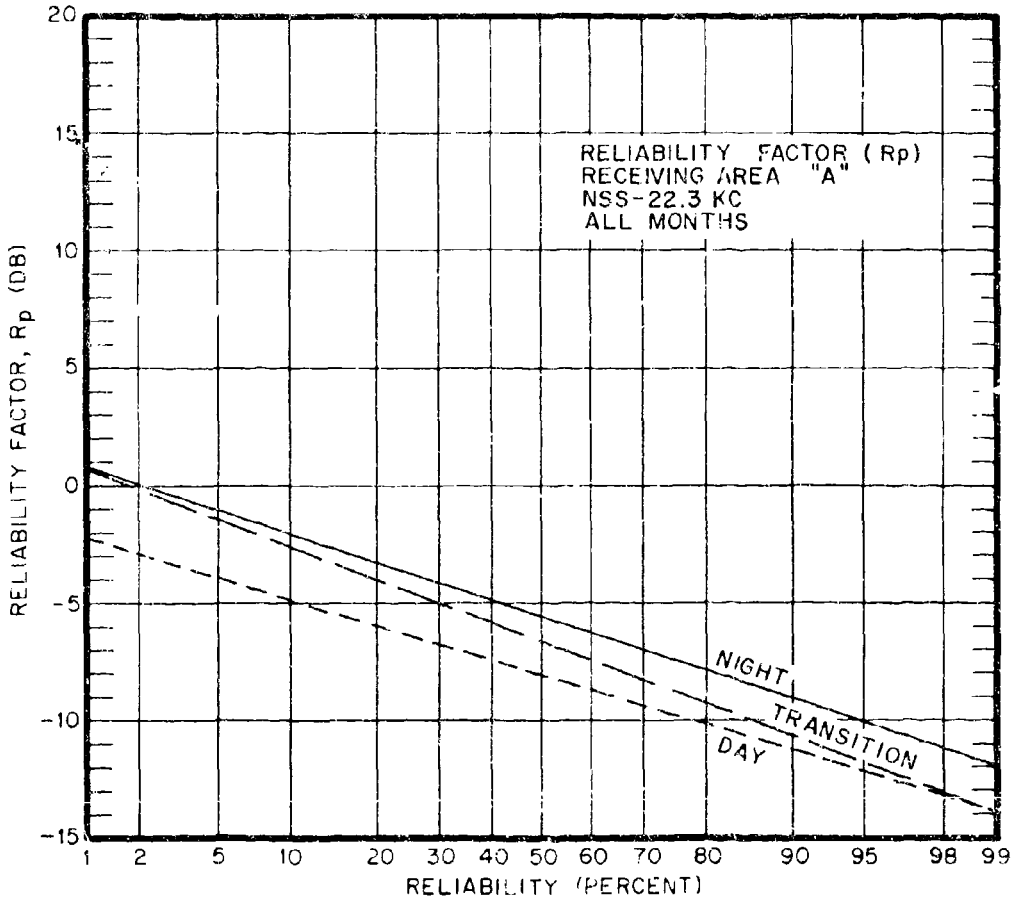


Figure A4 - Reliability factor, R_p, for NSS (22.3 Kc) transmissions into receiving area "A" for all months

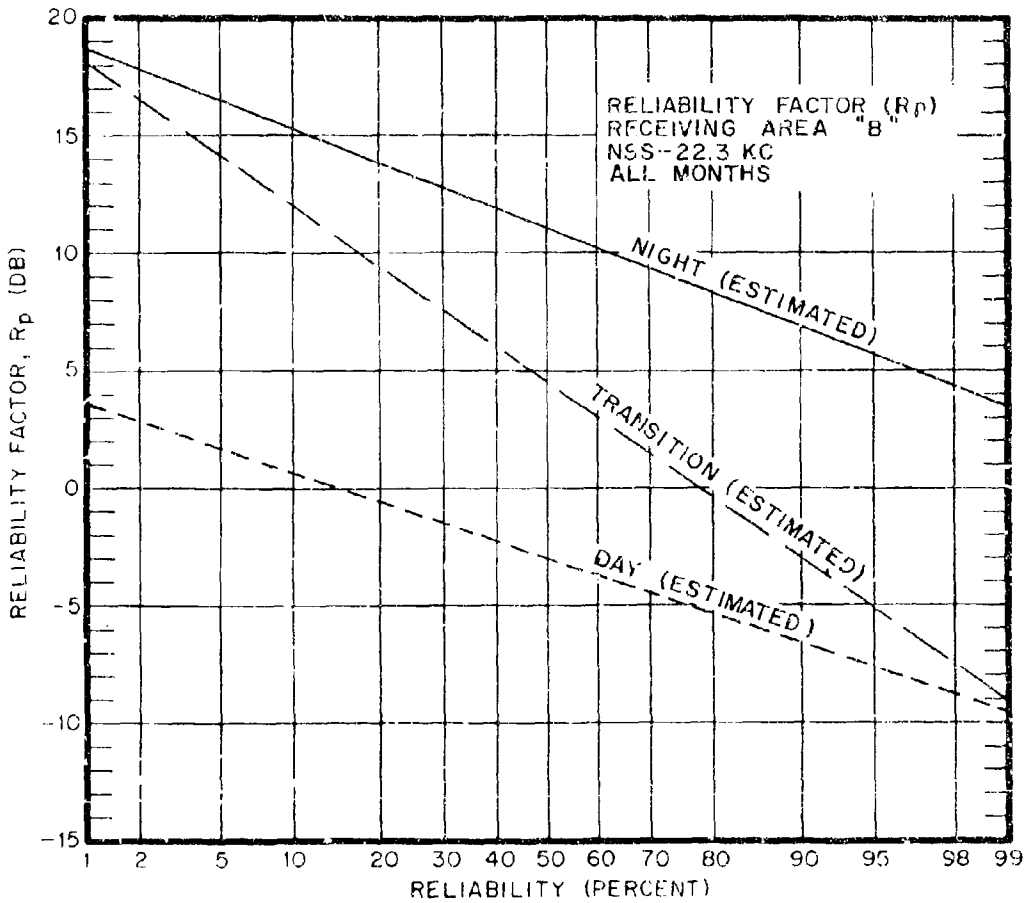


Figure A5 - Reliability factor, R_p, for NSS (22.3 Kc) transmissions into receiving area "B" for all months

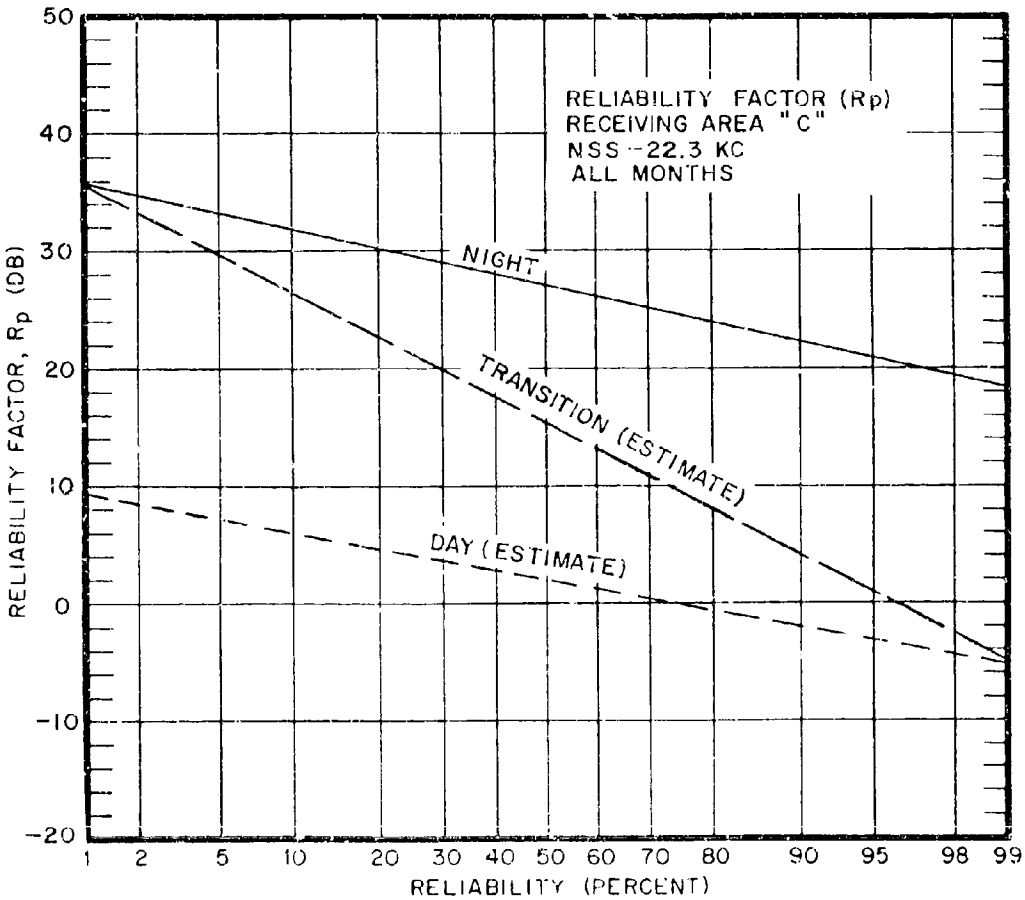


Figure A6 - Reliability factor, R_p, for NSS (22.3 Kc) transmissions into receiving area "C" for all months

TABLE NO. A1

TRANSMITTER: NSS

RECEIVER: Lat. 52.5°N to 57.5°N
Long. 15°W to 25°W

TIME (± 30 Min) Z	JAN 1 11 21 / 10 20 31	FEB 1 11 21 / 10 20 28	MAR 1 11 21 / 10 20 31	APR 1 11 21 / 10 20 30	MAY 1 11 21 / 10 20 31	JUN 1 11 21 / 10 20 30	JUL 1 11 12 / 10 20 31	AUG 1 11 21 / 10 20 31	SEP 1 11 21 / 10 20 30	OCT 1 11 21 / 10 20 31	NOV 1 11 21 / 10 20 30	DEC 1 11 21 / 10 20 31
0000	N N N	N N N	N N N	- - -	- - -	D D D	D D -	- - -	- - N	N N N	N N N	N N N
0100	N N N	N N N	N N N	N N N	- - -	- D D	- - -	- - N	N N N	N N N	N N N	N N N
0200	N N N	N N N	N N N	N N N	N N N	- - -	- N N	N N N	N N N	N N N	N N N	N N N
0300	N N N	N N N	N N N	N N N	N N -	- - -	- - N	N N N	N N N	N N N	N N N	N N N
0400	N N N	N N N	N N N	N N N	- - -	- - -	- - -	- N N	N N N	N N N	N N N	N N N
0500	N N N	N N N	N N N	N - -	- - -	- - -	- - -	- - -	N N N	N N N	N N N	N N N
0600	N N N	N N N	N N -	- - -	- - -	- - -	- - -	- - -	- - -	N N N	N N N	N N N
0700	N N N	N N N	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	N N N	N N N
0800	N N -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- N N
0900	- - -	- - -	- - -	- - -	D D D	D D D	D D D	- - -	- - -	- - -	- - -	- - -
1000	- - -	- - -	- - -	D D D	D D D	D D D	D D D	D D D	D D D	- - -	- - -	- - -
1100	- - -	- D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	- - -
1200	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1300	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1400	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1500	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1600	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1700	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1800	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1900	- - D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	- - -	- - -
2000	- - -	- - D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D - -	- - -	- - -
2100	- - -	- - -	- - D	D D D	D D D	D D D	D D D	D D D	D - -	- - -	- - -	- - -
2200	- - -	- - -	- - -	- - D	D D D	D D D	D D D	D D D	- - -	- - -	- - -	- - -
2300	- - -	- - -	- - -	- - -	- D D	D D D	D D D	D - -	- - -	- - -	- N N	N N N
2400	N N N	N N N	N N N	- - -	- - -	D D D	D D -	- - -	- - -	N N N	N N N	N N N

TABLE NO. A2

TRANSMITTER: NSS

RECEIVER: Lat. 52.5°N to 57.5°N
Long. 5°W to 15°W

TIME (± 30 Min) Z	JAN 1 11 21 / 10 20 31	FEB 1 11 21 / 10 20 28	MAR 1 11 21 / 10 20 31	APR 1 11 21 / 10 20 30	MAY 1 11 21 / 10 20 31	JUN 1 11 21 / 10 20 30	JUL 1 11 21 / 10 20 31	AUG 1 11 21 / 10 20 31	SEP 1 11 21 / 10 20 30	OCT 1 11 21 / 10 20 31	NOV 1 11 21 / 10 20 30	DEC 1 11 21 / 10 20 31
0000	N N N	N N N	- - -	- - -	- - -	D D D	D - -	- - -	- - N	N N N	N N N	N N N
0100	N N N	N N N	N N N	N N N	- - -	- D D	- - -	- - N	N N N	N N N	N N N	N N N
0200	N N N	N N N	N N N	N N N	N N -	- - -	- - N	N N N	N N N	N N N	N N N	N N N
0300	N N N	N N N	N N N	N N N	N - -	- - -	- - -	N N N	N N N	N N N	N N N	N N N
0400	N N N	N N N	N N N	N N -	- - -	- - -	- - -	- - N	N N N	N N N	N N N	N N N
0500	N N N	N N N	N N N	- - -	- - -	- - -	- - -	- - -	- - N	N N N	N N N	N N N
0600	N N N	N N N	N - -	- - -	- - -	- - -	- - -	- - -	- - -	- - N	N N N	N N N
0700	N N N	N - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - N	N N N
0800	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
0900	- - -	- - -	- - -	- - -	D D D	D D D	D D D	- - -	- - -	- - -	- - -	- - -
1000	- - -	- - -	- - -	D D D	D D D	D D D	D D D	D D D	D D D	- - -	- - -	- - -
1100	- - -	- D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	- - -
1200	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1300	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1400	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1500	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1600	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1700	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1800	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D -	- - -
1900	- - -	- D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D -	- - -	- - -
2000	- - -	- - -	- D D	D D D	D D D	D D D	D D D	D D D	D D -	- - -	- - -	- - -
2100	- - -	- - -	- - -	- D D	D D D	D D D	D D D	D D D	- - -	- - -	- - -	- - -
2200	- - -	- - -	- - -	- - -	D D D	D D D	D D D	D - -	- - -	- - -	- - -	- - -
2300	- - -	- - -	- - -	- - -	- - D	D D D	D D -	- - -	- - -	- - -	- N N	N N N
2400	N N N	N N N	- - -	- - -	- - -	D D D	D - -	- - -	- - -	N N N	N N N	N N N

TABLE NO. A3

TRANSMITTER: NSS

RECEIVER: Lat. 52.5°N to 57.5°N
Long. 5°W to 5°E

TIME (± 30 Min) Z	JAN			FEB			MAR			APR			MAY			JUN			JUL			AUG			SEP			OCT			NOV			DEC		
	1	11	21	1	11	21	1	11	21	1	11	21	1	11	21	1	11	21	1	11	21	1	11	21	1	11	21	1	11	21	1	11	21	1	11	21
	10	20	31	10	20	28	10	20	31	10	20	30	10	20	31	10	20	30	10	20	31	10	20	31	10	20	30	10	20	31	10	20	30	10	20	31
0000	N	N	N	N	N	N	-	-	-	-	-	-	-	-	-	D	D	D	-	-	-	-	-	-	-	-	N	N	N	N	N	N	N	N	N	N
0100	N	N	N	N	N	N	N	N	N	N	N	N	-	-	-	-	D	D	-	-	-	-	-	N	N	N	N	N	N	N	N	N	N	N	N	N
0200	N	N	N	N	N	N	N	N	N	N	N	N	N	-	-	-	-	-	-	-	-	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
0300	N	N	N	N	N	N	N	N	N	N	N	-	-	-	-	-	-	-	-	-	-	-	-	N	N	N	N	N	N	N	N	N	N	N	N	N
0400	N	N	N	N	N	N	N	N	N	N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N	N	N	N	N	N	N	N	N	N	N
0500	N	N	N	N	N	N	N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N	N	N	N	N	N	N	N
0600	N	N	N	N	N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N	N	N	N	N
0700	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0800	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0900	-	-	-	-	-	-	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1000	-	-	-	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	-	-	-
1100	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	-	-	-
1200	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-
1300	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
1400	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
1500	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
1600	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
1700	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
1800	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	-
1900	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	-	-	-
2000	-	-	-	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	-	-	-	-	-
2100	-	-	-	-	-	-	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	-	-	-	-	-
2200	-	-	-	-	-	-	-	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	-	-	-	-	-	-	-
2300	-	-	-	-	-	-	-	-	-	-	-	-	-	-	D	D	D	D	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2400	N	N	N	N	N	N	-	-	-	-	-	-	-	-	-	D	D	D	-	-	-	-	-	-	-	-	-	N	N	N	N	N	N	N	N	N

TABLE NO. A4

TRANSMITTER: NSS

RECEIVER: Lat. 57.5°N to 62.5°N
Long. 15°W to 25°W

TIME (± 30 Min) Z	JAN 1 11 21 / 10 20 31	FEB 1 11 21 / 10 20 28	MAR 1 11 21 / 10 20 31	APR 1 11 21 / 10 20 30	MAY 1 11 21 / 10 20 31	JUN 1 11 21 / 10 20 30	JUL 1 11 21 / 10 20 31	AUG 1 11 21 / 10 20 31	SEP 1 11 21 / 10 20 30	OCT 1 11 21 / 10 20 31	NOV 1 11 21 / 10 20 30	DEC 1 11 21 / 10 20 31
0000	N N N	N N N	- - -	- - -	- D D	D D D	D D D	D - -	- - N	N N N	N N N	N N N
0100	N N N	N N N	N N N	N N N	- - D	D D D	D D D	- - N	N N N	N N N	N N N	N N N
0200	N N N	N N N	N N N	N N N	N - -	- - -	- - -	- N N	N N N	N N N	N N N	N N N
0300	N N N	N N N	N N N	N N N	- - -	- - -	- - -	- N N	N N N	N N N	N N N	N N N
0400	N N N	N N N	N N N	N N -	- - -	- - -	- - -	- - N	N N N	N N N	N N N	N N N
0500	N N N	N N N	N N N	- - -	- - -	- - -	- - -	- - -	- N N	N N N	N N N	N N N
0600	N N N	N N N	N N -	- - -	- - -	- - -	- - -	- - -	- - -	N N N	N N N	N N N
0700	N N N	N N N	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	N N N	N N N
0800	N N N	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	N N N
0900	- - -	- - -	- - -	- - -	D D D	D D D	D D D	- - -	- - -	- - -	- - -	- - -
1000	- - -	- - -	- - -	D D D	D D D	D D D	D D D	D D D	D D D	- - -	- - -	- - -
1100	- - -	- D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	- - -
1200	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1300	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1400	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1500	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1600	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1700	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1800	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1900	- - -	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	- - -	- - -
2000	- - -	- - D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D - -	- - -	- - -
2100	- - -	- - -	- - D	D D D	D D D	D D D	D D D	D D D	D D -	- - -	- - -	- - -
2200	- - -	- - -	- - -	- D D	D D D	D D D	D D D	D D D	- - -	- - -	- - -	- - -
2300	- - -	- - -	- - -	- - D	D D D	D D D	D D D	D D -	- - -	- - -	- N N	N N N
2400	N N N	N N N	- - -	- - -	- D D	D D D	D D D	D - -	- - -	N N N	N N N	N N N

TABLE NO. A5

TRANSMITTER: NSS

RECEIVER: Lat. 57.5°N to 62.5°N
Long. 5°W to 15°W

TIME (± 30 Min) Z	JAN 1 10	JAN 11 20	JAN 21 31	FEB 1 10	FEB 11 20	FEB 21 28	MAR 1 10	MAR 11 20	MAR 21 31	APR 1 10	APR 11 20	APR 21 30	MAY 1 10	MAY 11 20	MAY 21 31	JUN 1 10	JUN 11 20	JUN 21 30	JUL 1 10	JUL 11 20	JUL 21 31	AUG 1 10	AUG 11 20	AUG 21 31	SEP 1 10	SEP 11 20	SEP 21 30	OCT 1 10	OCT 11 20	OCT 21 31	NOV 1 10	NOV 11 20	NOV 21 30	DEC 1 10	DEC 11 20	DEC 21 31
0000	N	N	N	N	N	N	-	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	-	-	-	-	N	N	N	N	N	N	N	N	N	N
0100	N	N	N	N	N	N	N	N	N	N	N	N	-	-	D	D	D	D	D	D	D	-	-	N	N	N	N	N	N	N	N	N	N	N	N	N
0200	N	N	N	N	N	N	N	N	N	N	N	N	N	-	-	-	-	-	-	-	-	-	N	N	N	N	N	N	N	N	N	N	N	N	N	N
0300	N	N	N	N	N	N	N	N	N	N	N	-	-	-	-	-	-	-	-	-	-	-	-	N	N	N	N	N	N	N	N	N	N	N	N	N
0400	N	N	N	N	N	N	N	N	N	N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N	N	N	N	N	N	N	N	N	N	N	N
0500	N	N	N	N	N	N	N	N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N	N	N	N	N	N	N	N	N	N
0600	N	N	N	N	N	N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N	N	N	N	N	N	N
0700	N	N	N	N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N	N	N	N	N
0800	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0900	-	-	-	-	-	-	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1000	-	-	-	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	-	-	-
1100	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-
1200	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
1300	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
1400	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
1500	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
1600	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
1700	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
1800	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-
1900	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	-	-
2000	-	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	-	-	-
2100	-	-	-	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	-	-	-	-	-
2200	-	-	-	-	-	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	-	-	-	-	-	-	-
2300	-	-	-	-	-	-	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	-	-	N	N	N	N	N	N
2400	N	N	N	N	N	N	-	-	-	-	-	-	-	D	D	D	D	D	D	D	D	-	-	-	-	-	-	N	N	N	N	N	N	N	N	N

TABLE NO. A6

TRANSMITTER: NSS

RECEIVER: Lat. 57.5°N to 62.5°N
Long. 5°W to 5°E

TIME (± 30 Min) Z	JAN 1 11 21 / 10 20 31	FEB 1 11 21 / 10 20 28	MAR 1 11 21 / 10 20 31	APR 1 11 21 / 10 20 30	MAY 1 11 21 / 10 20 31	JUN 1 11 21 / 10 20 30	JUL 1 11 21 / 10 20 31	AUG 1 11 21 / 10 20 31	SEP 1 11 21 / 10 20 30	OCT 1 11 21 / 10 20 31	NOV 1 11 21 / 10 20 30	DEC 1 11 21 / 10 20 31
0000	N N N	N N N	- - -	- - -	- D D	D D D	D D D	- - -	- - N	N N N	N N N	N N N
0100	N N N	N N N	N N N	N N N	- - D	D D D	D D D	- - N	N N N	N N N	N N N	N N N
0200	N N N	N N N	N N N	N N N	- - -	- - -	- - -	- N N	N N N	N N N	N N N	N N N
0300	N N N	N N N	N N N	N - -	- - -	- - -	- - -	- - -	N N N	N N N	N N N	N N N
0400	N N N	N N N	N N N	- - -	- - -	- - -	- - -	- - -	- - N	N N N	N N N	N N N
0500	N N N	N N N	N - -	- - -	- - -	- - -	- - -	- - -	- - -	- N N	N N N	N N N
0600	N N N	N N -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- N N	N N N
0700	N N -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- N N
0800	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
0900	- - -	- - -	- - -	- - -	D D D	D D D	D D D	- - -	- - -	- - -	- - -	- - -
1000	- - -	- - -	- - -	D D D	D D D	D D D	D D D	D D D	D D D	- - -	- - -	- - -
1100	- - -	- D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	- - -
1200	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1300	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1400	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1500	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1600	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1700	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D -	- - -
1800	- - -	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D -	- - -	- - -
1900	- - -	- - -	D D D	D D D	D D D	D D D	D D D	D D D	D D D	- - -	- - -	- - -
2000	- - -	- - -	- - D	D D D	D D D	D D D	D D D	D D D	D - -	- - -	- - -	- - -
2100	- - -	- - -	- - -	- D D	D D D	D D D	D D D	D D D	- - -	- - -	- - -	- - -
2200	- - -	- - -	- - -	- - -	D D D	D D D	D D D	D D -	- - -	- - -	- - -	- - -
2300	- - -	- - -	- - -	- - -	- D D	D D D	D D D	D - -	- - -	- - -	- N N	N N N
2400	N N N	N N N	- - -	- - -	- D D	D D D	D D D	- - -	- - -	N N N	N N N	N N N

SECRET

TABLE NO. A7

TRANSMITTER: NSS

RECEIVER: Lat. 62.5°N to 67.5°N
Long. 15°W to 25°W

TIME (± 30 Min) Z	JAN 1 11 21 / 10 20 31	FEB 1 11 21 / 10 20 28	MAR 1 11 21 / 10 20 31	APR 1 11 21 / 10 20 30	MAY 1 11 21 / 10 20 31	JUN 1 11 21 / 10 20 30	JUL 1 11 21 / 10 20 31	AUG 1 11 21 / 10 20 31	SEP 1 11 21 / 10 20 30	OCT 1 11 21 / 10 20 31	NOV 1 11 21 / 10 20 30	DEC 1 11 21 / 10 20 31
0000	N N N	N N N	- - -	- - D	D D D	D D D	D D D	D D -	- - N	N N N	N N N	N N N
0100	N N N	N N N	N N N	N N -	- - D	D D D	D D D	- - N	N N N	N N N	N N N	N N N
0200	N N N	N N N	N N N	N N -	- - -	- - -	- - -	- - N	N N N	N N N	N N N	N N N
0300	N N N	N N N	N N N	N N -	- - -	- - -	- - -	- - N	N N N	N N N	N N N	N N N
0400	N N N	N N N	N N N	N - -	- - -	- - -	- - -	- - -	N N N	N N N	N N N	N N N
0500	N N N	N N N	N N N	- - -	- - -	- - -	- - -	- - -	- - N	N N N	N N N	N N N
0600	N N N	N N N	N - -	- - -	- - -	- - -	- - -	- - -	- - -	- N N	N N N	N N N
0700	N N N	N N -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	N N N	N N N
0800	N N N	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - N	N N N
0900	- - -	- - -	- - -	- - -	D D D	D D D	D D D	- - -	- - -	- - -	- - -	- - -
1000	- - -	- - -	- - -	D D D	D D D	D D D	D D D	D D D	D D D	- - -	- - -	- - -
1100	- - -	- D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	- - -
1200	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1300	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1400	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1500	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1600	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1700	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1800	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1900	- - -	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	- - -	- - -
2000	- - -	- - D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D - -	- - -	- - -
2100	- - -	- - -	- D D	D D D	D D D	D D D	D D D	D D D	D D D	- - -	- - -	- - -
2200	- - -	- - -	- - -	D D D	D D D	D D D	D D D	D D D	D - -	- - -	- - -	- - -
2300	- - -	- - -	- - -	- D D	D D D	D D D	D D D	D D D	- - -	- - -	- N N	N N N
2400	N N N	N N N	- - -	- - D	D D D	D D D	D D D	D D -	- - -	N N N	N N N	N N N

SECRET

TABLE NO. A8

TRANSMITTER: NSS

RECEIVER: Lat. 62.5°N to 67.5°N
Long. 5°W to 15°W

TIME (± 30 Min) Z	JAN 1 11 21 / 10 20 31	FEB 1 11 21 / 10 20 28	MAR 1 11 21 / 10 20 31	APR 1 11 21 / 10 20 30	MAY 1 11 21 / 10 20 31	JUN 1 11 21 / 10 20 30	JUL 1 11 21 / 10 20 31	AUG 1 11 21 / 10 20 31	SEP 1 11 21 / 10 20 30	OCT 1 11 21 / 10 20 31	NOV 1 11 21 / 10 20 30	DEC 1 11 21 / 10 20 31
0000	N N N	N N N	- - -	- - D	D D D	D D D	D D D	D D -	- - N	N N N	N N N	N N N
0100	N N N	N N N	N N N	N N -	- - D	D D D	D D D	- - N	N N N	N N N	N N N	N N N
0200	N N N	N N N	N N N	N N -	- - -	- - -	- - -	- - N	N N N	N N N	N N N	N N N
0300	N N N	N N N	N N N	N - -	- - -	- - -	- - -	- - -	N N N	N N N	N N N	N N N
0400	N N N	N N N	N N N	- - -	- - -	- - -	- - -	- - -	- N N	N N N	N N N	N N N
0500	N N N	N N N	N N -	- - -	- - -	- - -	- - -	- - -	- - -	N N N	N N N	N N N
0600	N N N	N N N	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	N N N	N N N
0700	N N N	N - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- N N	N N N
0800	N - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- N N
0900	- - -	- - -	- - -	- - -	D D D	D D D	D D D	- - -	- - -	- - -	- - -	- - -
1000	- - -	- - -	- - -	D D D	D D D	D D D	D D D	D D D	D D D	- - -	- - -	- - -
1100	- - -	- D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	- - -
1200	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	- - -
1300	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1400	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1500	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1600	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1700	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1800	- - D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D - -	- - -
1900	- - -	- D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D -	- - -	- - -
2000	- - -	- - -	- D D	D D D	D D D	D D D	D D D	D D D	D D D	- - -	- - -	- - -
2100	- - -	- - -	- - D	D D D	D D D	D D D	D D D	D D D	D D -	- - -	- - -	- - -
2200	- - -	- - -	- - -	- D D	D D D	D D D	D D D	D D D	- - -	- - -	- - -	- - -
2300	- - -	- - -	- - -	- - -	D D D	D D D	D D D	D D D	- - -	- - -	N N N	N N N
2400	N N N	N N N	- - -	- - D	D D D	D D D	D D D	D D D	- - -	N N N	N N N	N N N

TABLE NO. A9

TRANSMITTER: NSS

RECEIVER: Lat. 62.5°N to 67.5°N
Long. 5°W to 5°E

TIME (± 30 Min) Z	JAN 1 11 21 / 10 20 31	FEB 1 11 21 / 10 20 28	MAR 1 11 21 / 10 20 31	APR 1 11 21 / 10 20 30	MAY 1 11 21 / 10 20 31	JUN 1 11 21 / 10 20 30	JUL 1 11 21 / 10 20 31	AUG 1 11 21 / 10 20 31	SEP 1 11 21 / 10 20 30	OCT 1 11 21 / 10 20 31	NOV 1 11 21 / 10 20 30	DEC 1 11 21 / 10 20 31
0000	N N N	N N N	- - -	- - D	D D D	D D D	D D D	D D -	- - N	N N N	N N N	N N N
0100	N N N	N N N	N N N	N N -	- - D	D D D	D D D	- - N	N N N	N N N	N N N	N N N
0200	N N N	N N N	N N N	N - -	- - -	- - -	- - -	- - -	N N N	N N N	N N N	N N N
0300	N N N	N N N	N N N	- - -	- - -	- - -	- - -	- - -	- N N	N N N	N N N	N N N
0400	N N N	N N N	N N -	- - -	- - -	- - -	- - -	- - -	- - N	N N N	N N N	N N N
0500	N N N	N N N	N - -	- - -	- - -	- - -	- - -	- - -	- - -	- N N	N N N	N N N
0600	N N N	N N -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	N N N	N N N
0700	N N N	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	N N N
0800	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
0900	- - -	- - -	- - -	- - -	D D D	D D D	D D D	- - -	- - -	- - -	- - -	- - -
1000	- - -	- - -	- - -	D D D	D D D	D D D	D D D	D D D	D D D	- - -	- - -	- - -
1100	- - -	- D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	- - -
1200	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1300	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1400	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1500	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1600	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1700	- D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D - -	- - -
1800	- - -	- D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D -	- - -	- - -
1900	- - -	- - -	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D - -	- - -	- - -
2000	- - -	- - -	- - D	D D D	D D D	D D D	D D D	D D D	D D -	- - -	- - -	- - -
2100	- - -	- - -	- - -	D D D	D D D	D D D	D D D	D D D	D - -	- - -	- - -	- - -
2200	- - -	- - -	- - -	- D D	D D D	D D D	D D D	D D D	- - -	- - -	- - -	- - -
2300	- - -	- - -	- - -	- - D	D D D	D D D	D D D	D D -	- - -	- - -	- N N	N N N
2400	N N N	N N N	- - -	- - D	D D D	D D D	D D D	D D -	- - -	N N N	N N N	N N N

TABLE NO.A10

TRANSMITTER: NSS

RECEIVER: Lat. 62.5°N to67.5°N
Long. 5°E to 15°E

TIME (± 30 Min) Z	JAN 1 11 21 / 10 20 31	FEB 1 11 21 / 10 20 28	MAR 1 11 21 / 10 20 31	APR 1 11 21 / 10 20 30	MAY 1 11 21 / 10 20 31	JUN 1 11 21 / 10 20 30	JUL 1 11 21 / 10 20 31	AUG 1 11 21 / 10 20 31	SEP 1 11 21 / 10 20 30	OCT 1 11 21 / 10 20 31	NOV 1 11 21 / 10 20 30	DEC 1 11 21 / 10 20 31
0000	N N N	N N N	- - -	- - D	D D D	D D D	D D D	D D -	- - N	N N N	N N N	N N N
0100	N N N	N N N	N N N	N N -	- - D	D D D	D D D	- - -	N N N	N N N	N N N	N N N
0200	N N N	N N N	N N N	N - -	- - -	- - -	- - -	- - -	N N N	N N N	N N N	N N N
0300	N N N	N N N	N N N	- - -	- - -	- - -	- - -	- - -	- - N	N N N	N N N	N N N
0400	N N N	N N N	N - -	- - -	- - -	- - -	- - -	- - -	- - -	- N N	N N N	N N N
0500	N N N	N N -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	N N N	N N N
0600	N N N	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - N	N N N
0700	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
0800	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
0900	- - -	- - -	- - -	- - -	D D D	D D D	D D D	- - -	- - -	- - -	- - -	- - -
1000	- - -	- - -	- - -	D D D	D D D	D D D	D D D	D D D	D D D	- - -	- - -	- - -
1100	- - -	- D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	- - -
1200	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1300	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1400	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1500	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1600	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	- - -
1700	- - -	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	- - -	- - -
1800	- - -	- - D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D - -	- - -	- - -
1900	- - -	- - -	- D D	D D D	D D D	D D D	D D D	D D D	D D D	- - -	- - -	- - -
2000	- - -	- - -	- - -	D D D	D D D	D D D	D D D	D D D	D - -	- - -	- - -	- - -
2100	- - -	- - -	- - -	- D D	D D D	D D D	D D D	D D D	- - -	- - -	- - -	- - -
2200	- - -	- - -	- - -	- - D	D D D	D D D	D D D	D D -	- - -	- - -	- - -	- - -
2300	- - -	- - -	- - -	- - D	D D D	D D D	D D D	D D -	- - -	- - -	- N N	N N N
2400	N N N	N N N	N N N	- - D	D D D	D D D	D D D	D D -	- - -	N N N	N N N	N N N

TABLE NO.A11

TRANSMITTER: NSS

RECEIVER: Lat. 67.5°N to 72.5°N
Long. 15°W to 25°W

TIME (± 30 Min) Z	JAN 1 11 21 10 20 31	FEB 1 11 21 10 20 28	MAR 1 11 21 10 20 31	APR 1 11 21 10 20 30	MAY 1 11 21 10 20 31	JUN 1 11 21 10 20 30	JUL 1 11 21 10 20 31	AUG 1 11 21 10 20 31	SEP 1 11 21 10 20 30	OCT 1 11 21 10 20 31	NOV 1 11 21 10 20 30	DEC 1 11 21 10 20 31
0000	N N N	N N N	- - -	- D D	D D D	D D D	D D D	D D D	- - N	N N N	N N N	N N N
0100	N N N	N N N	N N N	N - -	- - D	D D D	D D D	- - -	N N N	N N N	N N N	N N N
0200	N N N	N N N	N N N	N - -	- - -	- - -	- - -	- - -	N N N	N N N	N N N	N N N
0300	N N N	N N N	N N N	N - -	- - -	- - -	- - -	- - -	- N N	N N N	N N N	N N N
0400	N N N	N N N	N N N	- - -	- - -	- - -	- - -	- - -	- N N	N N N	N N N	N N N
0500	N N N	N N N	N N -	- - -	- - -	- - -	- - -	- - -	- - -	N N N	N N N	N N N
0600	N N N	N N N	N - -	- - -	- - -	- - -	- - -	- - -	- - -	- N N	N N N	N N N
0700	N N N	N N -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	N N N	N N N
0800	N N N	N - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- N N	N N N
0900	N N -	- - -	- - -	- - -	D D D	D D D	D D D	- - -	- - -	- - -	- - -	N N N
1000	- - -	- - -	- - -	D D D	D D D	D D D	D D D	D D D	D D D	- - -	- - -	- - -
1100	- - -	- D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	- - -
1200	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1300	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1400	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1500	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1600	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1700	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1800	- - D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D - -	- - -
1900	- - -	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	- - -	- - -
2000	- - -	- - D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D - -	- - -	- - -
2100	- - -	- - -	- D D	D D D	D D D	D D D	D D D	D D D	D D D	- - -	- - -	- - -
2200	- - -	- - -	- - D	D D D	D D D	D D D	D D D	D D D	D D -	- - -	- - -	- - -
2300	- - -	- - -	- - -	D D D	D D D	D D D	D D D	D D D	D - -	- - -	- N N	N N N
2400	N N N	N N N	N N N	- D D	D D D	D D D	D D D	D D D	- - -	N N N	N N N	N N N

TABLE NO. A12

TRANSMITTER: NSS

RECEIVER: Lat. 67.5°N to 72.5°N
Long. 5°W to 15°W

TIME (± 30 Min) Z	JAN 1 11 21 / 10 20 31	FEB 1 11 21 / 10 20 28	MAR 1 11 21 / 10 20 31	APR 1 11 21 / 10 20 30	MAY 1 11 21 / 10 20 31	JUN 1 11 21 / 10 20 30	JUL 1 11 21 / 10 20 31	AUG 1 11 21 / 10 20 31	SEP 1 11 21 / 10 20 30	OCT 1 11 21 / 10 20 31	NOV 1 11 21 / 10 20 30	DEC 1 11 21 / 10 20 31
0000	N N N	N N N	- - -	- D D	D D D	D D D	D D D	D D D	- - N	N N N	N N N	N N N
0100	N N N	N N N	N N N	N - -	- - D	D D D	D D D	- - -	N N N	N N N	N N N	N N N
0200	N N N	N N N	N N N	N - -	- - -	- - -	- - -	- - -	N N N	N N N	N N N	N N N
0300	N N N	N N N	N N N	- - -	- - -	- - -	- - -	- - -	- N N	N N N	N N N	N N N
0400	N N N	N N N	N N -	- - -	- - -	- - -	- - -	- - -	- - N	N N N	N N N	N N N
0500	N N N	N N N	N - -	- - -	- - -	- - -	- - -	- - -	- - -	- N N	N N N	N N N
0600	N N N	N N N	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - N	N N N	N N N
0700	N N N	N - -	- - -	- - -	- - -	- - -	- - -	- - -	- - *	- - -	- N N	N N N
0800	N N N	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	N N N
0900	- - -	- - -	- - -	- - -	D D D	D D D	D D D	- - -	- - -	- - -	- - -	- - -
1000	- - -	- - -	- - -	D D D	D D D	D D D	D D D	D D D	D D D	- - -	- - -	- - -
1100	- - -	- D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	- - -
1200	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1300	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1400	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1500	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1600	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1700	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D - -
1800	- - -	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D - -	- - -
1900	- - -	- - D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	- - -	- - -
2000	- - -	- - -	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D - -	- - -	- - -
2100	- - -	- - -	- - D	D D D	D D D	D D D	D D D	D D D	D D D	- - -	- - -	- - -
2200	- - -	- - -	- - -	D D D	D D D	D D D	D D D	D D D	D D -	- - -	- - -	- - -
2300	- - -	- - -	- - -	D D D	D D D	D D D	D D D	D D D	D - -	- - -	N N N	N N N
2400	N N N	N N N	N N N	- D D	D D D	D D D	D D D	D D D	- - -	N N N	N N N	N N N

TABLE NO. A13

TRANSMITTER: NSS

RECEIVER: Lat. 67.5°N to 72.5°N
Long. 5°W to 5°E

TIME (± 30 Min) Z	JAN 1 11 21 / 10 20 31	FEB 1 11 21 / 10 20 28	MAR 1 11 21 / 10 20 31	APR 1 11 21 / 10 20 30	MAY 1 11 21 / 10 20 31	JUN 1 11 21 / 10 20 30	JUL 1 11 21 / 10 20 31	AUG 1 11 21 / 10 20 31	SEP 1 11 21 / 10 20 30	OCT 1 11 21 / 10 20 31	NOV 1 11 21 / 10 20 30	DEC 1 11 21 / 10 20 31
0000	N N N	N N N	- - -	- D D	D D D	D D D	D D D	D D D	- - N	N N N	N N N	N N N
0100	N N N	N N N	N N N	N - -	- - D	D D D	D D D	- - -	N N N	N N N	N N N	N N N
0200	N N N	N N N	N N N	- - -	- - -	- - -	- - -	- - -	- N N	N N N	N N N	N N N
0300	N N N	N N N	N N N	- - -	- - -	- - -	- - -	- - -	- - N	N N N	N N N	N N N
0400	N N N	N N N	N N -	- - -	- - -	- - -	- - -	- - -	- - -	N N N	N N N	N N N
0500	N N N	N N N	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - N	N N N	N N N
0600	N N N	N N -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	N N N	N N N
0700	N N N	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - N	N N N
0800	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
0900	- - -	- - -	- - -	- - -	D D D	D D D	D D D	- - -	- - -	- - -	- - -	- - -
1000	- - -	- - -	- - -	D D D	D D D	D D D	D D D	D D D	D D D	- - -	- - -	- - -
1100	- - -	- D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	- - -
1200	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1300	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1400	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1500	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1600	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1700	- - D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	- - -	- - -
1800	- - -	- D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D -	- - -	- - -
1900	- - -	- - -	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D - -	- - -	- - -
2000	- - -	- - -	- D D	D D D	D D D	D D D	D D D	D D D	D D D	- - -	- - -	- - -
2100	- - -	- - -	- - D	D D D	D D D	D D D	D D D	D D D	D D -	- - -	- - -	- - -
2200	- - -	- - -	- - -	D D D	D D D	D D D	D D D	D D D	D - -	- - -	- - -	- - -
2300	- - -	- - -	- - -	- D D	D D D	D D D	D D D	D D D	- - -	- - -	N N N	N N N
2400	N N N	N N N	- - -	- D D	D D D	D D D	D D D	D D D	- - -	N N N	N N N	N N N

TABLE NO. A14

TRANSMITTER: NSS

RECEIVER: Lat. 67.5°N to 72.5°N
Long. 5°E to 15°E

TIME (± 30 Min) Z	JAN 1 11 21 / 10 20 31	FEB 1 11 21 / 10 20 28	MAR 1 11 21 / 10 20 31	APR 1 11 21 / 10 20 30	MAY 1 11 21 / 10 20 31	JUN 1 11 21 / 10 20 30	JUL 1 11 21 / 10 20 31	AUG 1 11 21 / 10 20 31	SEP 1 11 21 / 10 20 30	OCT 1 11 21 / 10 20 31	NOV 1 11 21 / 10 20 30	DEC 1 11 21 / 10 20 31
0000	N N N	N N N	- - -	- D D	D D D	D D D	D D D	D D D	- - N	N N N	N N N	N N N
0100	N N N	N N N	N N N	N - -	- - D	D D D	D D D	- - -	- N N	N N N	N N N	N N N
0200	N N N	N N N	N N N	- - -	- - -	- - -	- - -	- - -	- N N	N N N	N N N	N N N
0300	N N N	N N N	N N -	- - -	- - -	- - -	- - -	- - -	- - -	N N N	N N N	N N N
0400	N N N	N N N	N - -	- - -	- - -	- - -	- - -	- - -	- - -	- N N	N N N	N N N
0500	N N N	N N -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	N N N	N N N
0600	N N N	N - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- N N	N N N
0700	N - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- N N
0800	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
0900	- - -	- - -	- - -	- - -	D D D	D D D	D D D	- - -	- - -	- - -	- - -	- - -
1000	- - -	- - -	- - -	D D D	D D D	D D D	D D D	D D D	D D D	- - -	- - -	- - -
1100	- - -	- D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	- - -
1200	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1300	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1400	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1500	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1600	- - D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1700	- - -	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D - -	- - -
1800	- - -	- - D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	- - -	- - -
1900	- - -	- - -	- D D	D D D	D D D	D D D	D D D	D D D	D D D	D - -	- - -	- - -
2000	- - -	- - -	- - D	D D D	D D D	D D D	D D D	D D D	D D -	- - -	- - -	- - -
2100	- - -	- - -	- - -	D D D	D D D	D D D	D D D	D D D	D - -	- - -	- - -	- - -
2200	- - -	- - -	- - -	- D D	D D D	D D D	D D D	D D D	- - -	- - -	- - -	- - -
2300	- - -	- - -	- - -	- D D	D D D	D D D	D D D	D D D	- - -	- - -	- N N	N N N
2400	N N N	N N N	N N N	- D D	D D D	D D D	D D D	D D D	- - -	N N N	N N N	N N N

TABLE NO. A15

TRANSMITTER: NSS

RECEIVER: Lat. 67.5°N to 72.5°N
Long. 15°E to 25°E

TIME (± 30 Min) Z	JAN 1 11 21 / 10 20 31	FEB 1 11 21 / 10 20 28	MAR 1 11 21 / 10 20 31	APR 1 11 21 / 10 20 30	MAY 1 11 21 / 10 20 31	JUN 1 11 21 / 10 20 30	JUL 1 11 21 / 10 20 31	AUG 1 11 21 / 10 20 31	SEP 1 11 21 / 10 20 30	OCT 1 11 21 / 10 20 31	NOV 1 11 21 / 10 20 30	DEC 1 11 21 / 10 20 31
0000	N N N	N N N	– – –	– D D	D D D	D D D	D D D	D D D	– – N	N N N	N N N	N N N
0100	N N N	N N N	N N N	– – –	– – D	D D D	D D D	– – –	– N N	N N N	N N N	N N N
0200	N N N	N N N	N N –	– – –	– – –	– – –	– – –	– – –	– – N	N N N	N N N	N N N
0300	N N N	N N N	N – –	– – –	– – –	– – –	– – –	– – –	– – –	– N N	N N N	N N N
0400	N N N	N N N	– – –	– – –	– – –	– – –	– – –	– – –	– – –	– – N	N N N	N N N
0500	N N N	N – –	– – –	– – –	– – –	– – –	– – –	– – –	– – –	– – –	– N N	N N N
0600	N N N	– – –	– – –	– – –	– – –	– – –	– – –	– – –	– – –	– – –	– – –	N N N
0700	– – –	– – –	– – –	– – –	– – –	– – –	– – –	– – –	– – –	– – –	– – –	– – –
0800	– – –	– – –	– – –	– – –	– – –	– – –	– – –	– – –	– – –	– – –	– – –	– – –
0900	– – –	– – –	– – –	– – –	D D D	D D D	D D D	– – –	– – –	– – –	– – –	– – –
1000	– – –	– – –	– – –	D D D	D D D	D D D	D D D	D D D	– – –	– – –	– – –	– – –
1100	– – –	– D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	– – –	– – –	– – –
1200	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	– – –
1300	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1400	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1500	– – D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D –	– – –
1600	– – –	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	– – –	– – –
1700	– – –	– D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D –	– – –	– – –
1800	– – –	– – –	D D D	D D D	D D D	D D D	D D D	D D D	D D D	– – –	– – –	– – –
1900	– – –	– – –	– – D	D D D	D D D	D D D	D D D	D D D	D D –	– – –	– – –	– – –
2000	– – –	– – –	– – –	D D D	D D D	D D D	D D D	D D D	D – –	– – –	– – –	– – –
2100	– – –	– – –	– – –	D D D	D D D	D D D	D D D	D D D	D – –	– – –	– – –	– – –
2200	– – –	– – –	– – –	– D D	D D D	D D D	D D D	D D D	D – –	– – –	– – –	– – –
2300	– – –	– – –	– – –	– D D	D D D	D D D	D D D	D D D	– – –	– – –	– – –	– – –
2400	N N N	N N N	– – –	– D D	D D D	D D D	D D D	D D D	– – –	N N N	N N N	N N N

TABLE NO. A16

TRANSMITTER: NSS

RECEIVER: Lat. 72.5°N to 77.5°N
Long. 15°W to 25°W

TIME (± 30 Min) Z	JAN 1 11 21 / 10 20 31	FEB 1 11 21 / 10 20 28	MAR 1 11 21 / 10 20 31	APR 1 11 21 / 10 20 30	MAY 1 11 21 / 10 20 31	JUN 1 11 21 / 10 20 30	JUL 1 11 21 / 10 20 31	AUG 1 11 21 / 10 20 31	SEP 1 11 21 / 10 20 30	OCT 1 11 21 / 10 20 31	NOV 1 11 21 / 10 20 30	DEC 1 11 21 / 10 20 31
0000	N N N	N N N	– – –	D D D	D D D	D D D	D D D	D D D	D – N	N N N	N N N	N N N
0100	N N N	N N N	N N N	– – –	– – D	D D D	D D D	– – –	– – N	N N N	N N N	N N N
0200	N N N	N N N	N N N	– – –	– – –	– – –	– – –	– – –	– – N	N N N	N N N	N N N
0300	N N N	N N N	N N –	– – –	– – –	– – –	– – –	– – –	– – N	N N N	N N N	N N N
0400	N N N	N N N	N N –	– – –	– – –	– – –	– – –	– – –	– – N	N N N	N N N	N N N
0500	N N N	N N N	N – –	– – –	– – –	– – –	– – –	– – –	– – –	N N N	N N N	N N N
0600	N N N	N N N	– – –	– – –	– – –	– – –	– – –	– – –	– – –	– N N	N N N	N N N
0700	N N N	N N –	– – –	– – –	– – –	– – –	– – –	– – –	– – –	– – –	N N N	N N N
0800	N N N	N – –	– – –	– – –	– – –	– – –	– – –	– – –	– – –	– – –	– N N	N N N
0900	N N –	– – –	– – –	– – –	D D D	D D D	D D D	– – –	– – –	– – –	– – N	N N N
1000	– – –	– – –	– – –	D D D	D D D	D D D	D D D	D D D	D D D	– – –	– – –	– – –
1100	– – –	– D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	– – –
1200	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1300	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1400	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1500	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1600	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1700	– D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	– – –
1800	– – –	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D –	– – –
1900	– – –	– D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	– – –	– – –
2000	– – –	– – D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D –	– – –	– – –
2100	– – –	– – –	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D – –	– – –	– – –
2200	– – –	– – –	– D D	D D D	D D D	D D D	D D D	D D D	D D D	– – –	– – –	– – –
2300	– – –	– – –	– – D	D D D	D D D	D D D	D D D	D D D	D D –	– – –	N N N	N N N
2400	N N N	N N N	– – –	D D D	D D D	D D D	D D D	D D D	D – –	N N N	N N N	N N N

TABLE NO.A17

TRANSMITTER: NSS

RECEIVER: Lat 72.5°N to 77.5°N
Long. 5°W to 15°W

TIME (± 30 Min) Z	JAN 1 11 21 / 10 20 31	FEB 1 11 21 / 10 20 28	MAR 1 11 21 / 10 20 31	APR 1 11 21 / 10 20 30	MAY 1 11 21 / 10 20 31	JUN 1 11 21 / 10 20 30	JUL 1 11 21 / 10 20 31	AUG 1 11 21 / 10 20 31	SEP 1 11 21 / 10 20 30	OCT 1 11 21 / 10 20 31	NOV 1 11 21 / 10 20 30	DEC 1 11 21 / 10 20 31
0000	N N N	N N N	- - -	D D D	D D D	D D D	D D D	D D D	D - N	N N N	N N N	N N N
0100	N N N	N N N	N N N	- - -	- - D	D D D	D D D	- - -	- - N	N N N	N N N	N N N
0200	N N N	N N N	N N N	- - -	- - -	- - -	- - -	- - -	- - N	N N N	N N N	N N N
0300	N N N	N N N	N N -	- - -	- - -	- - -	- - -	- - -	- - N	N N N	N N N	N N N
0400	N N N	N N N	N N -	- - -	- - -	- - -	- - -	- - -	- - -	N N N	N N N	N N N
0500	N N N	N N N	N - -	- - -	- - -	- - -	- - -	- - -	- - -	- N N	N N N	N N N
0600	N N N	N N N	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - N	N N N	N N N
0700	N N N	N - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	N N N	N N N
0800	N N N	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- N N	N N N
0900	N N -	- - -	- - -	- - -	D D D	D D D	D D D	- - -	- - -	- - -	- - -	N N N
1000	- - -	- - -	- - -	D D D	D D D	D D D	D D D	D D D	D D D	- - -	- - -	- - -
1100	- - -	- D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	- - -
1200	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1300	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1400	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1500	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1600	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D -
1700	- - -	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D - -	- - -
1800	- - -	- D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	- - -	- - -
1900	- - -	- - D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D -	- - -	- - -
2000	- - -	- - -	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D - -	- - -	- - -
2100	- - -	- - -	- D D	D D D	D D D	D D D	D D D	D D D	D D D	- - -	- - -	- - -
2200	- - -	- - -	- - D	D D D	D D D	D D D	D D D	D D D	D D -	- - -	- - -	- - -
2300	- - -	- - -	- - D	D D D	D D D	D D D	D D D	D D D	D D -	- - -	N N N	N N N
2400	N N N	N N N	N - -	D D D	D D D	D D D	D D D	D D D	D - -	N N N	N N N	N N N

TABLE NO. A18

TRANSMITTER: NSS

RECEIVER: Lat. 72.5°N to 77.5°N
Long. 5°W to 5°E

TIME (± 30 Min) Z	JAN 1 11 21 10 20 31	FEB 1 11 21 10 20 28	MAR 1 11 21 10 20 31	APR 1 11 21 10 20 30	MAY 1 11 21 10 20 31	JUN 1 11 21 10 20 30	JUL 1 11 21 10 20 31	AUG 1 11 21 10 20 31	SEP 1 11 21 10 20 30	OCT 1 11 21 10 20 31	NOV 1 11 21 10 20 30	DEC 1 11 21 10 20 31
0000	N N N	N N N	- - -	D D D	D D D	D D D	D D D	D D D	D D N	N N N	N N N	N N N
0100	N N N	N N N	N N N	- - -	- - D	D D D	D D D	- - -	- - N	N N N	N N N	N N N
0200	N N N	N N N	N N -	- - -	- - -	- - -	- - -	- - -	- - N	N N N	N N N	N N N
0300	N N N	N N N	N N -	- - -	- - -	- - -	- - -	- - -	- - -	N N N	N N N	N N N
0400	N N N	N N N	N - -	- - -	- - -	- - -	- - -	- - -	- - -	- N N	N N N	N N N
0500	N N N	N N N	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - N	N N N	N N N
0600	N N N	N N -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	N N N	N N N
0700	N N N	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- N N	N N N
0800	N N -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - N	N N N
0900	- - -	- - -	- - -	- - -	D D D	D D D	D D D	- - -	- - -	- - -	- - -	- - N
1000	- - -	- - -	- - -	D D D	D D D	D D D	D D D	D D D	D D D	- - -	- - -	- - -
1100	- - -	- D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	- - -
1200	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1300	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1400	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1500	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D -
1600	- - D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D -	- - -
1700	- - -	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	- - -	- - -
1800	- - -	- D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D -	- - -	- - -
1900	- - -	- - D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D - -	- - -	- - -
2000	- - -	- - -	- D D	D D D	D D D	D D D	D D D	D D D	D D D	- - -	- - -	- - -
2100	- - -	- - -	- - D	D D D	D D D	D D D	D D D	D D D	D D D	- - -	- - -	- - -
2200	- - -	- - -	- - D	D D D	D D D	D D D	D D D	D D D	D D -	- - -	- - -	- - -
2300	- - -	- - -	- - -	D D D	D D D	D D D	D D D	D D D	D - -	- - -	N N N	N N N
2400	N N N	N N N	- - -	D D D	D D D	D D D	D D D	D D D	D - -	N N N	N N N	N N N

TABLE NO. A19

TRANSMITTER: NSS

RECEIVER: Lat. 72.5°N to 77.5°N
Long 5°E to 15°E

TIME (± 30 Min) Z	JAN 1 11 21 / 10 20 31	FEB 1 11 21 / 10 20 28	MAR 1 11 21 / 10 20 31	APR 1 11 21 / 10 20 30	MAY 1 11 21 / 10 20 31	JUN 1 11 21 / 10 20 30	JUL 1 11 21 / 10 20 31	AUG 1 11 21 / 10 20 31	SEP 1 11 21 / 10 20 30	OCT 1 11 21 / 10 20 31	NOV 1 11 21 / 10 20 30	DEC 1 11 21 / 10 20 31
0000	N N N	N N N	- - -	D D D	D D D	D D D	D D D	D D D	- - N	N N N	N N N	N N N
0100	N N N	N N N	N N N	- - -	- - D	D D D	D D D	- - -	- - N	N N N	N N N	N N N
0200	N N N	N N N	N N -	- - -	- - -	- - -	- - -	- - -	- - N	N N N	N N N	N N N
0300	N N N	N N N	N - -	- - -	- - -	- - -	- - -	- - -	- - -	N N N	N N N	N N N
0400	N N N	N N N	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- N N	N N N	N N N
0500	N N N	N N -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	N N N	N N N
0600	N N N	N - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- N N	N N N
0700	N N -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - N	N N N
0800	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - N
0900	- - -	- - -	- - -	- - -	D D D	D D D	D D D	- - -	- - -	- - -	- - -	- - -
1000	- - -	- - -	- - -	D D D	D D D	D D D	D D D	D D D	D D D	- - -	- - -	- - -
1100	- - -	- D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	- - -
1200	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1300	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1400	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1500	- D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D - -
1600	- - -	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D -	- - -
1700	- - -	- D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	- - -	- - -
1800	- - -	- - D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D -	- - -	- - -
1900	- - -	- - -	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D - -	- - -	- - -
2000	- - -	- - -	- D D	D D D	D D D	D D D	D D D	D D D	D D D	- - -	- - -	- - -
2100	- - -	- - -	- - D	D D D	D D D	D D D	D D D	D D D	D D -	- - -	- - -	- - -
2200	- - -	- - -	- - D	D D D	D D D	D D D	D D D	D D D	D D -	- - -	- - -	- - -
2300	- - -	- - -	- - -	D D D	D D D	D D D	D D D	D D D	D - -	- - -	N N N	N N N
2400	N N N	N N N	- - -	D D D	D D D	D D D	D D D	D D D	- - -	N N N	N N N	N N N

TABLE NO.. A20

TRANSMITTER: NSS

RECEIVER: Lat 72.5 °N to 77.5 °N
Long. 15 °E to 25 °E

TIME (± 30 Min) Z	JAN 1 11 21 10 20 31	FEB 1 11 21 10 20 28	MAR 1 11 21 10 20 31	APR 1 11 21 10 20 30	MAY 1 11 21 10 20 31	JUN 1 11 21 10 20 30	JUL 1 11 21 10 20 31	AUG 1 11 21 10 20 31	SEP 1 11 21 10 20 30	OCT 1 11 21 10 20 31	NOV 1 11 21 10 20 30	DEC 1 11 21 10 20 31
0000	N N N	N N N	- - -	- - D	D D D	D D D	D D D	D D D	- - N	N N N	N N N	N N N
0100	N N N	N N N	N N N	- - -	- - D	D D D	D D D	- - -	- - N	N N N	N N N	N N N
0200	N N N	N N N	N N -	- - -	- - -	- - -	- - -	- - -	- - -	N N N	N N N	N N N
0300	N N N	N N N	N - -	- - -	- - -	- - -	- - -	- - -	- - -	- N N	N N N	N N N
0400	N N N	N N N	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - N	N N N	N N N
0500	N N N	N - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	N N N	N N N
0600	N N N	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - N	N N N
0700	N - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - N
0800	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
0900	- - -	- - -	- - -	- - -	D D D	D D D	D D D	D - -	- - -	- - -	- - -	- - -
1000	- - -	- - -	- - -	D D D	D D D	D D D	D D D	D D D	D D D	D - -	- - -	- - -
1100	- - -	- D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	- - -
1200	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1300	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1400	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D - -
1500	- - D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D -	- - -
1600	- - -	- D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	- - -	- - -
1700	- - -	- - D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D -	- - -	- - -
1800	- - -	- - -	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D - -	- - -	- - -
1900	- - -	- - -	- D D	D D D	D D D	D D D	D D D	D D D	D D D	- - -	- - -	- - -
2000	- - -	- - -	- - D	D D D	D D D	D D D	D D D	D D D	D D -	- - -	- - -	- - -
2100	- - -	- - -	- - D	D D D	D D D	D D D	D D D	D D D	D D -	- - -	- - -	- - -
2200	- - -	- - -	- - -	D D D	D D D	D D D	D D D	D D D	D - -	- - -	- - -	- - -
2300	- - -	- - -	- - -	D D D	D D D	D D D	D D D	D D D	D - -	- - -	N N N	N N N
2400	N N N	N N N	- - -	- - D	D D D	D D D	D D D	D D D	- - -	N N N	N N N	N N N

APPENDIX B
DATA FOR THE CALCULATION OF THE FIELD STRENGTHS OF NAA (14.7 or 14.8 Kc) TRANSMISSIONS

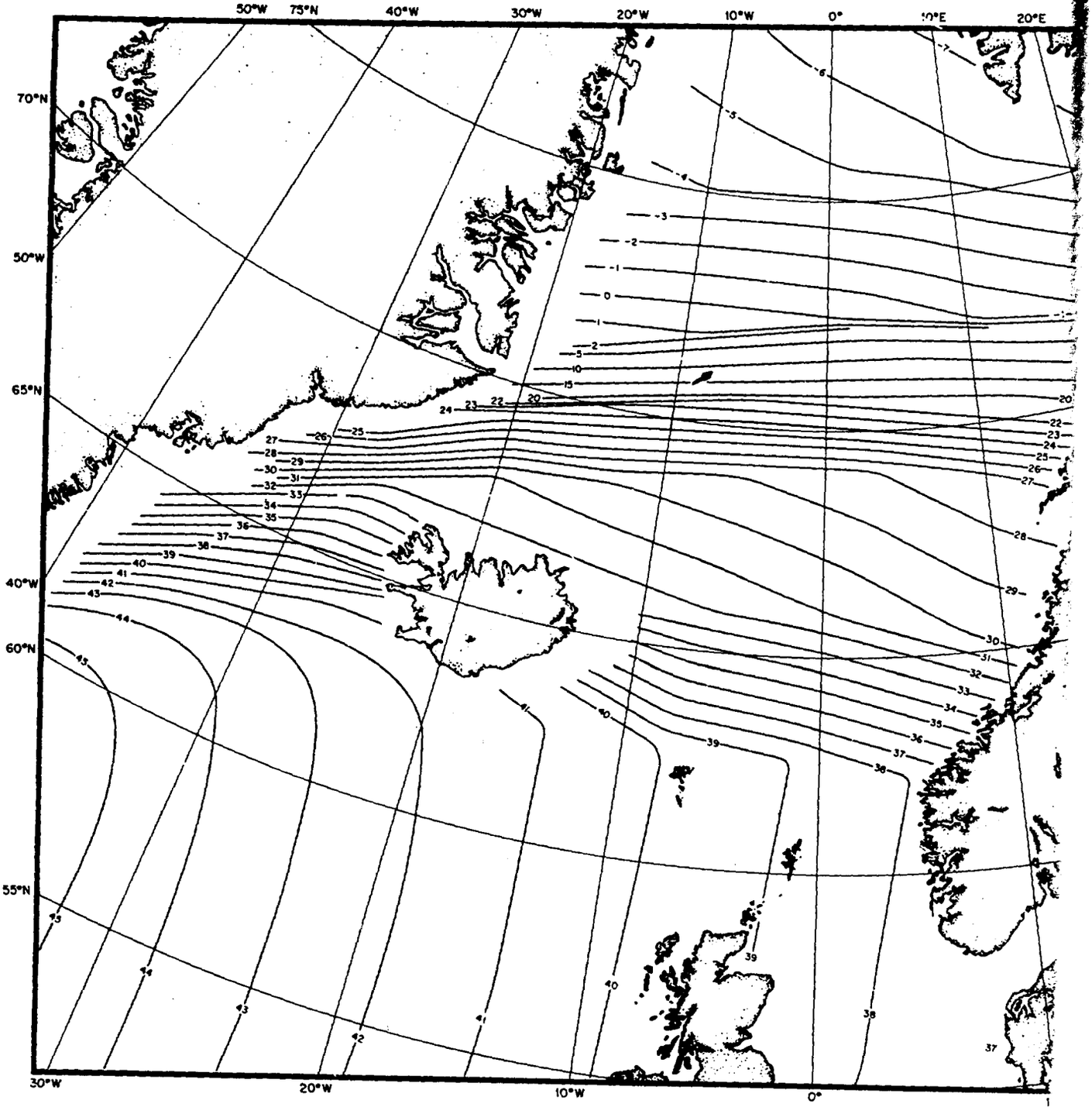


Figure B1 - Field strength contour map of the Norwegian Sea and surroundings for transmissions from NAA (14.7 or 14.8 Kc).

APPENDIX B
DATA FOR THE CALCULATION OF THE FIELD STRENGTHS OF NAA (14.7 or 14.8 Kc) TRANSMISSIONS

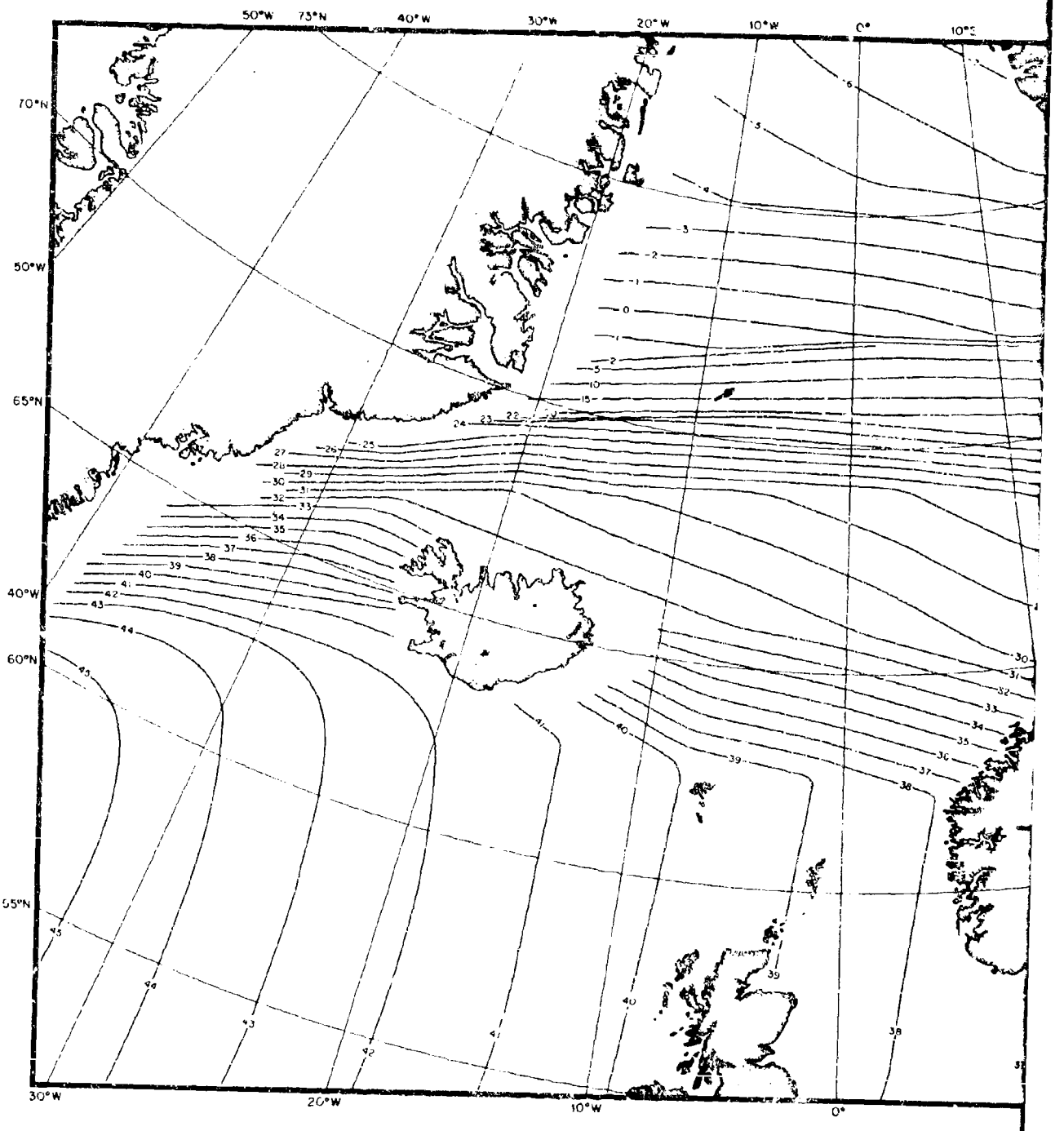
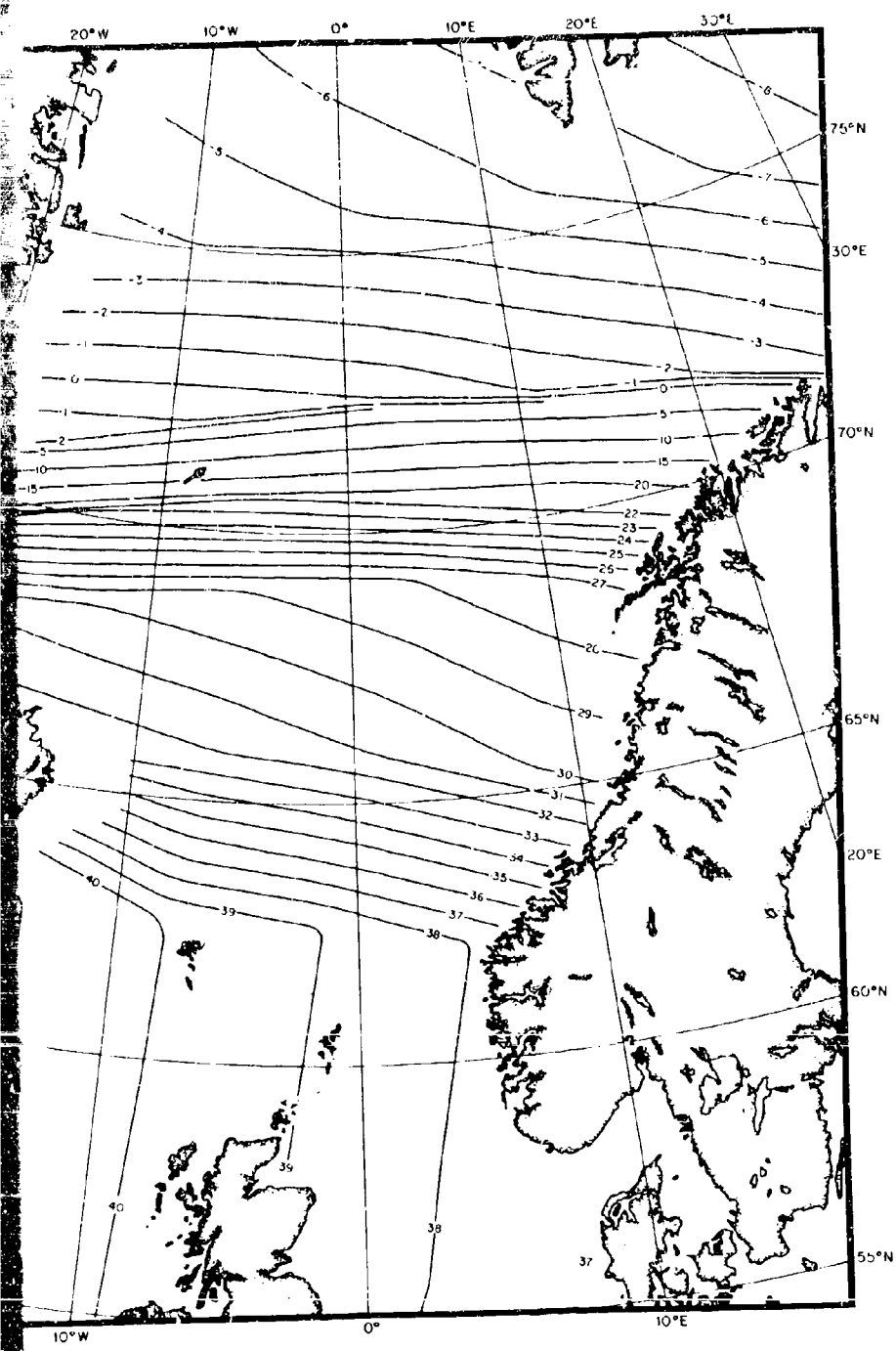


Figure B1 - Field strength contour map of the Norwegian Sea and surroundings for transmissions from NAA (14.7 or 14.8

PENDIX B
TION OF THE FIELD STRENGTHS
14.8 Kc) TRANSMISSIONS



contour map of the Norwegian Sea and
r transmissions from NAA (14.7 or 14.8 Kc).

SECRET

2

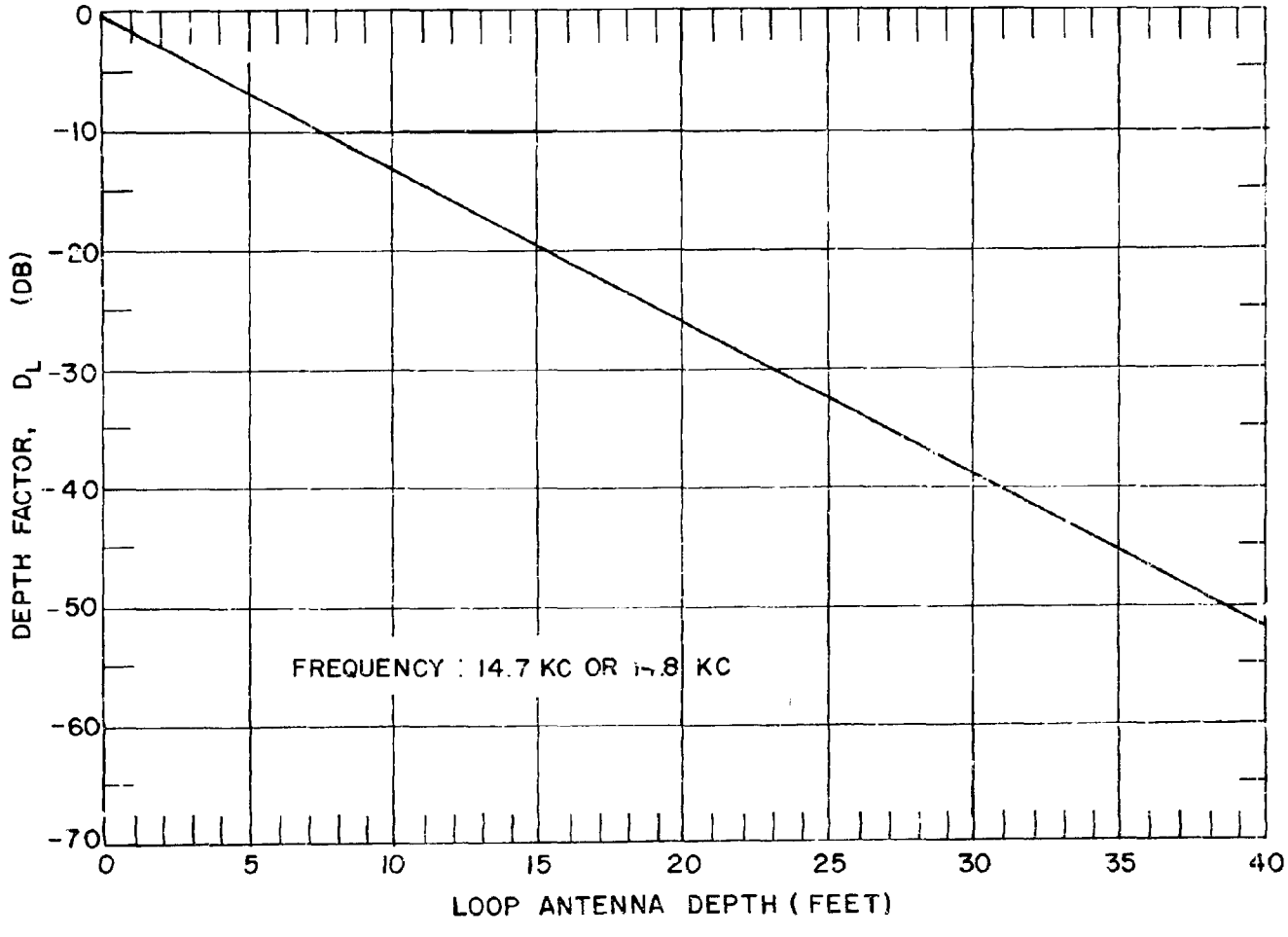


Figure B2 - Depth factor, D_L, as a function of receiving antenna depth in sea water of 3.6×10^{10} e.s.u. conductivity for NAA (14.7 or 14.8 Kc) transmissions

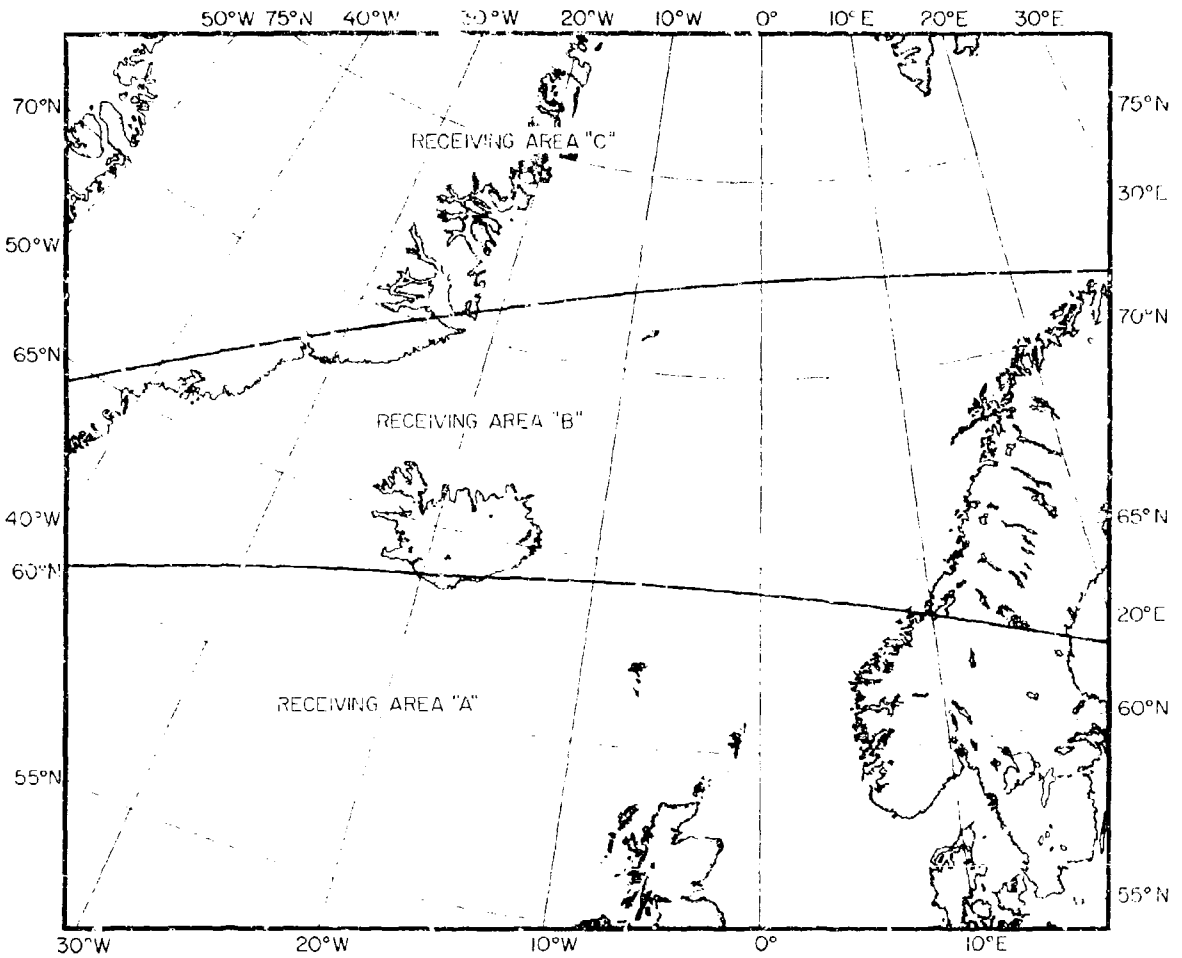


Figure B3 - NAA receiving areas in Norwegian Sea, the transmission paths to which traverse significantly different distances of poor ground conductivity

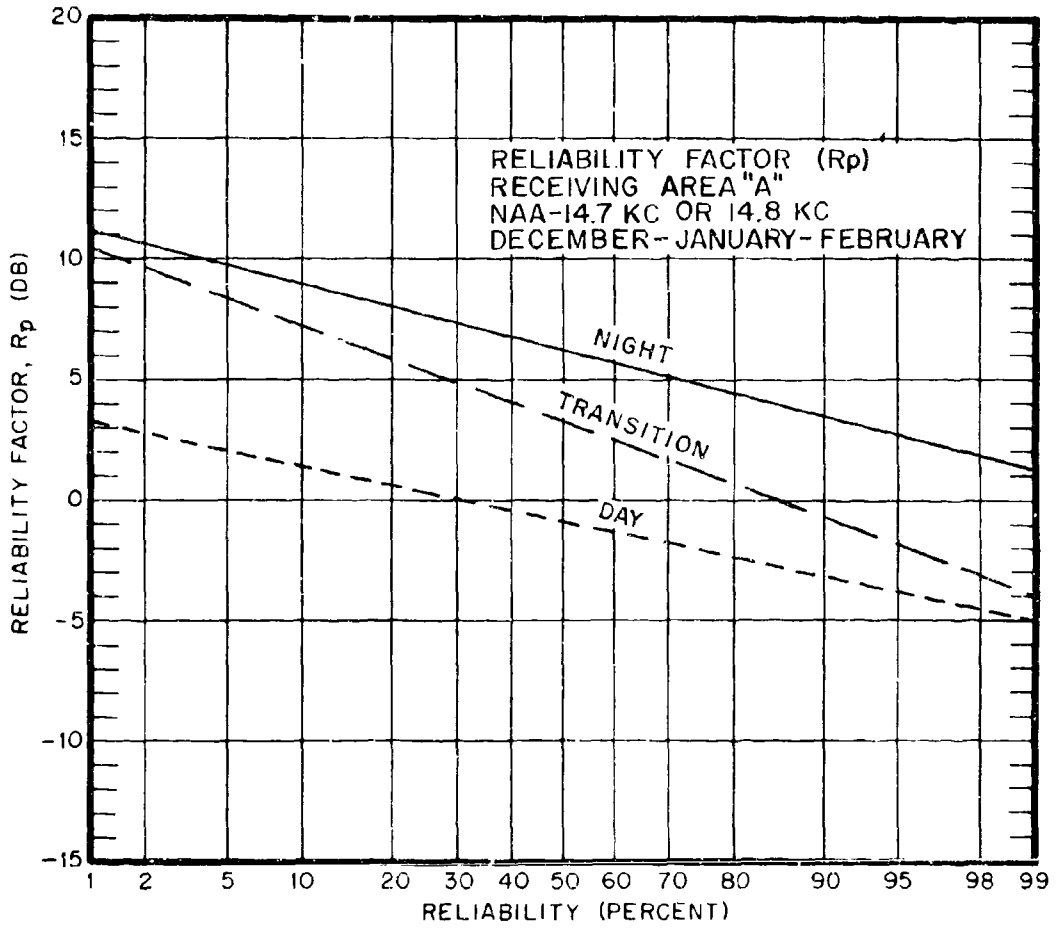


Figure B4 - Reliability factor, R_p, for NAA (14.7 or 14.8 Kc) transmissions into receiving area "A" for winter months

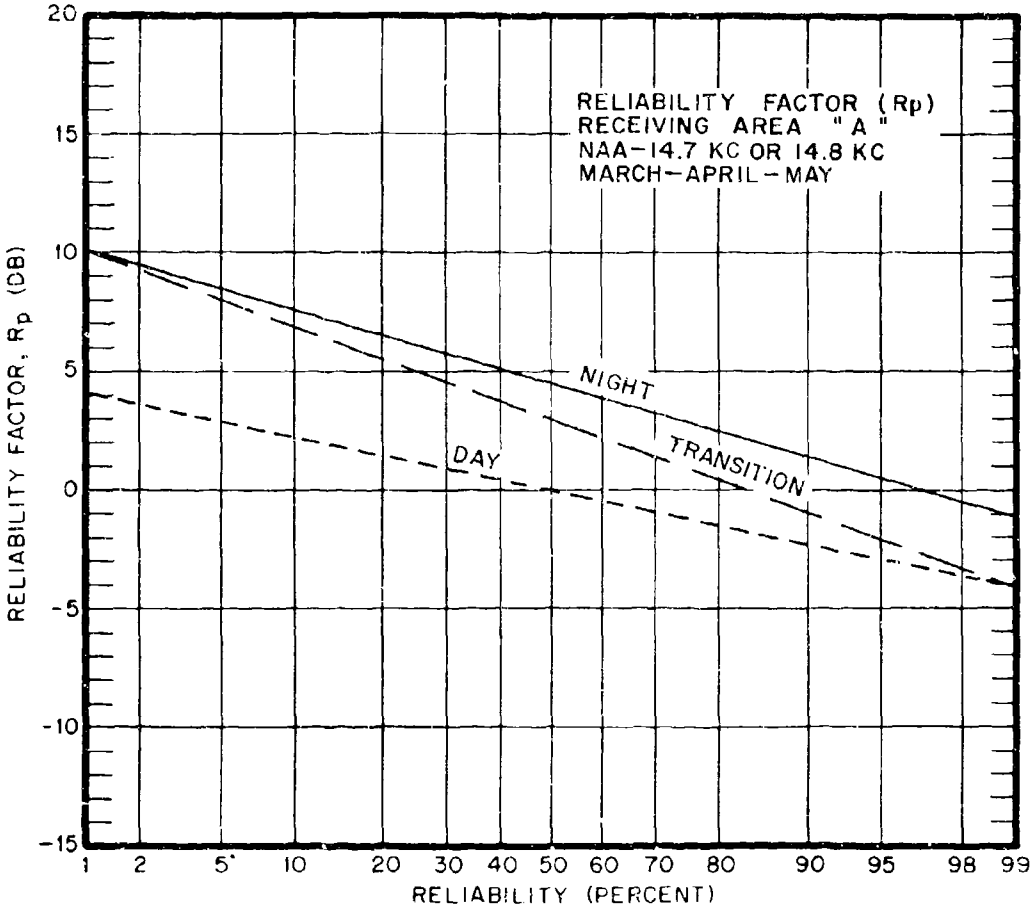


Figure B5 - Reliability factor, R_p, for NAA (14.7 or 14.8 Kc) transmissions into receiving area "A" for spring months

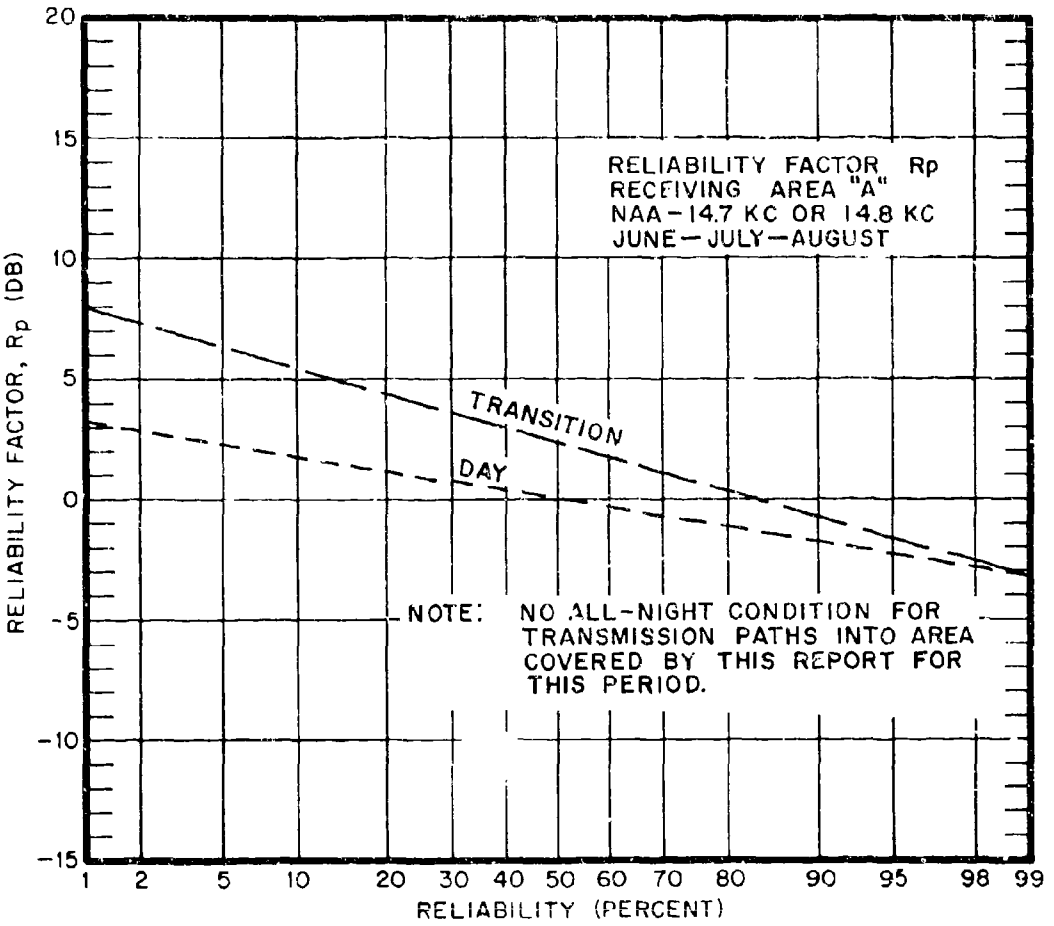


Figure B6 - Reliability factor, R_p, for NAA (14.7 or 14.8 Kc) transmissions into receiving area "A" for summer months

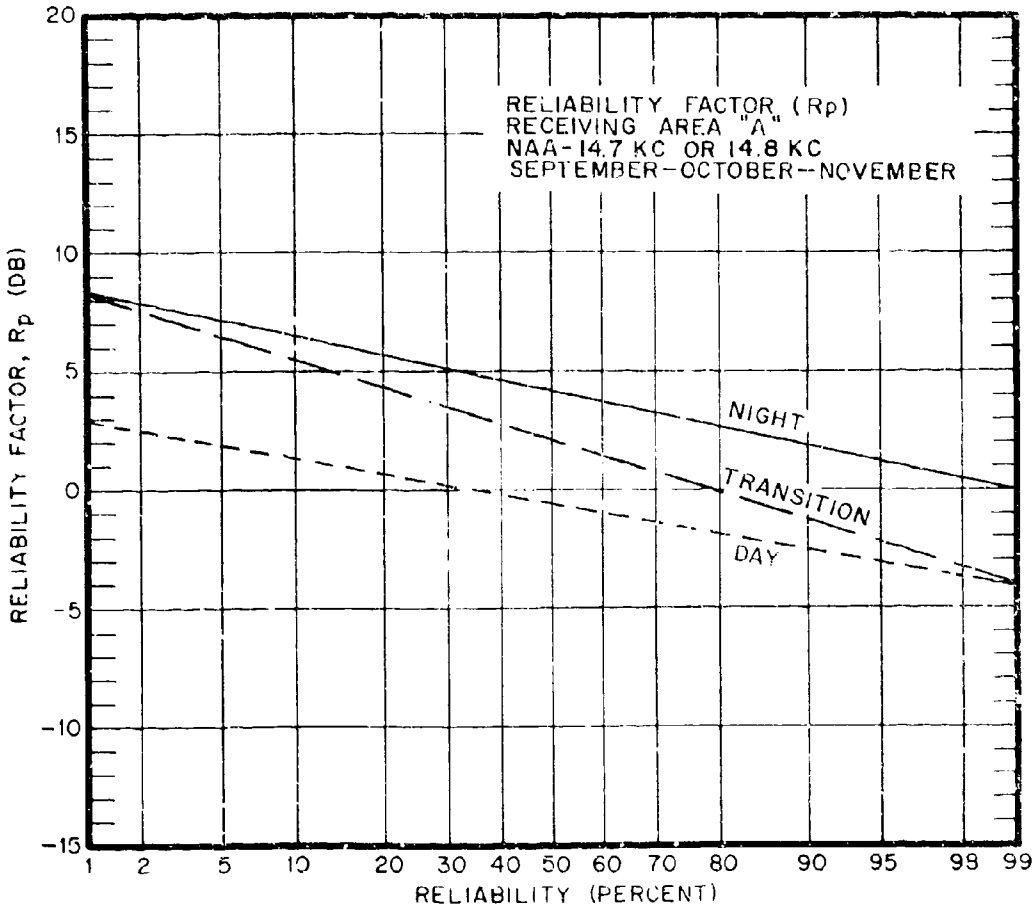


Figure B7 - Reliability factor, R_p, for NAA (14.7 or 14.8 Kc) transmissions into receiving area "A" for fall months

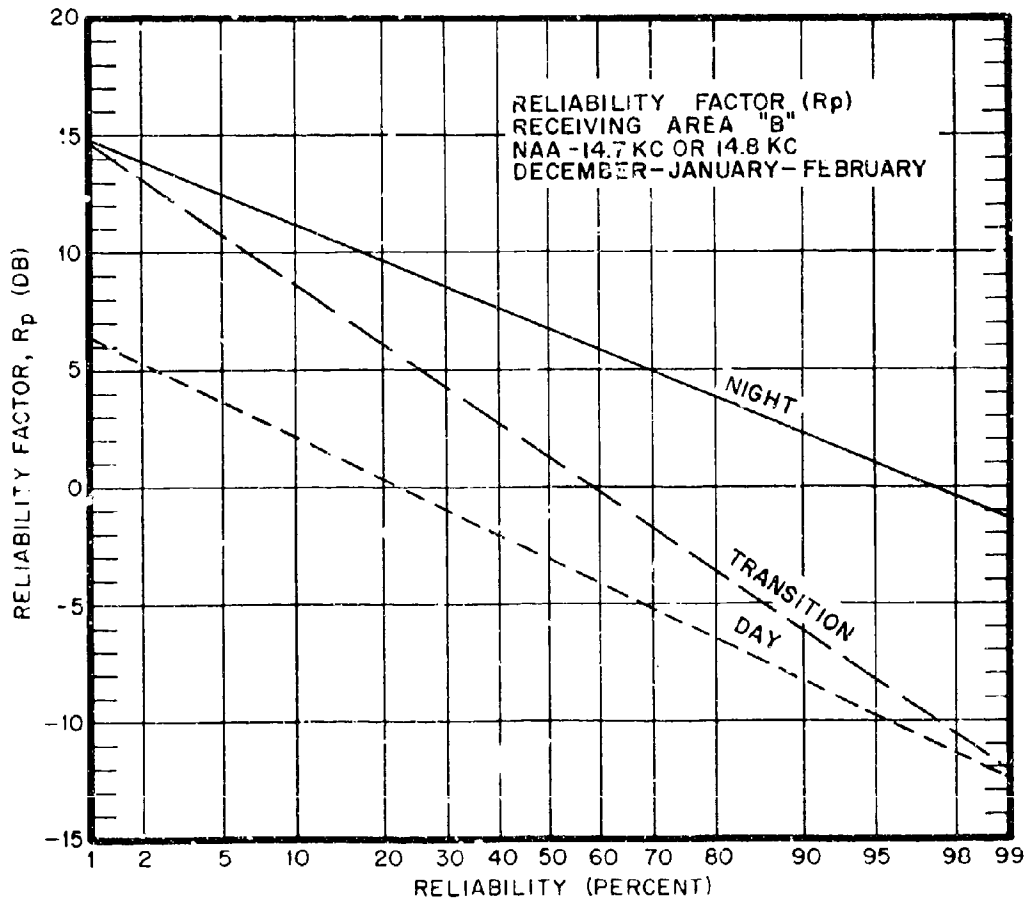


Figure B8 - Reliability factor, R_p, for NAA (14.7 or 14.8 Kc) transmissions into receiving area "B" for winter months

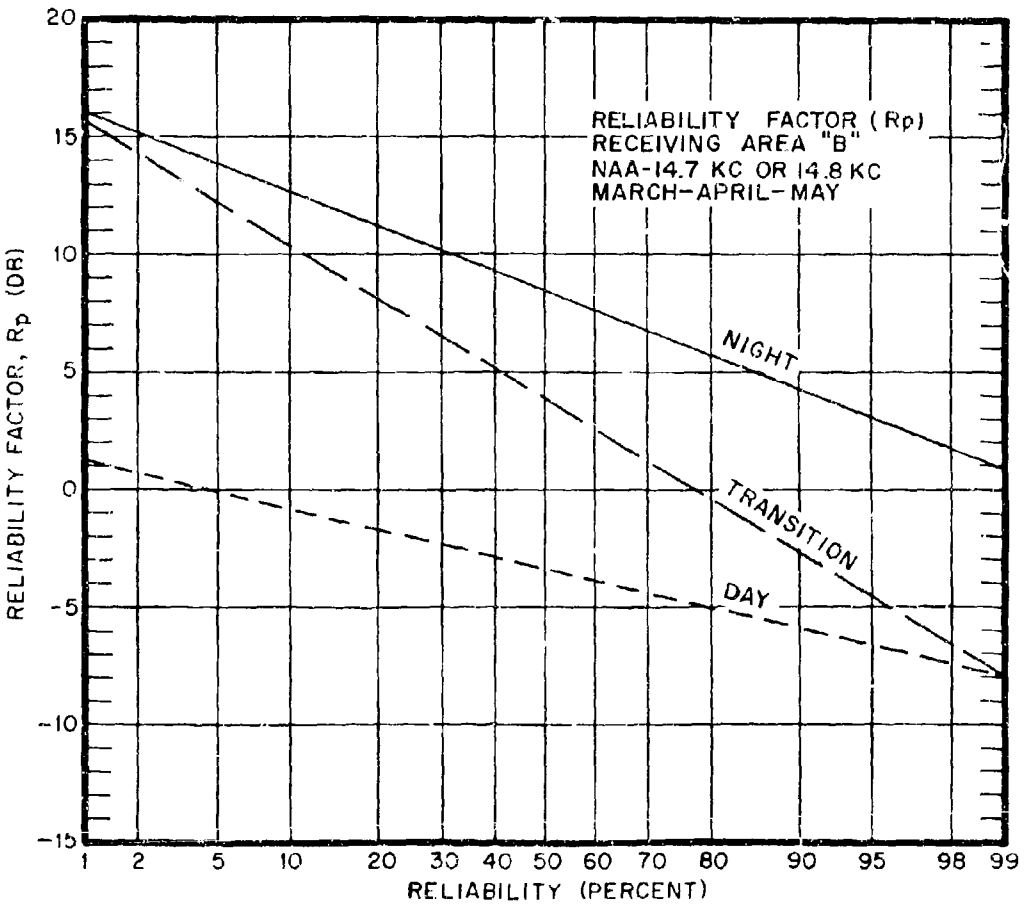


Figure B9 - Reliability factor, R_p, for NAA (14.7 or 14.8 Kc) transmissions into receiving area "B" for spring months

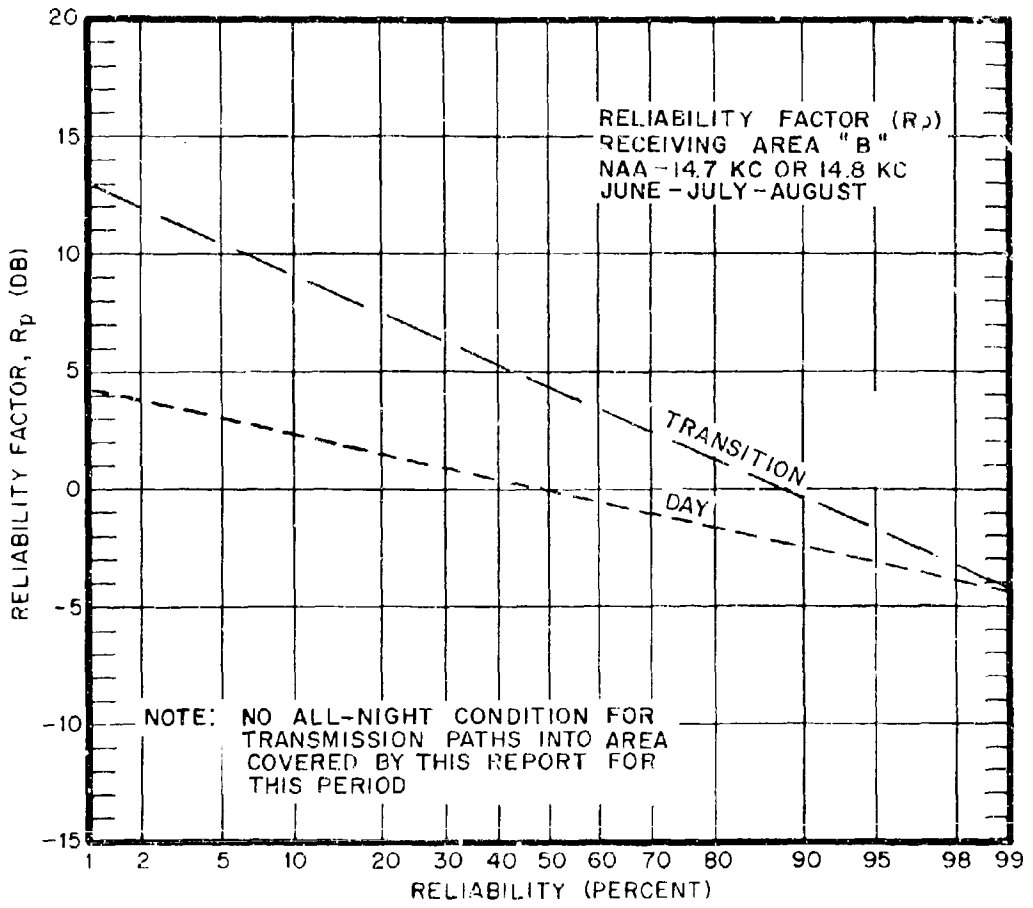


Figure B10 - Reliability factor, R_p, for NAA (14.7 or 14.8 Kc) transmissions into receiving area "B" for summer months

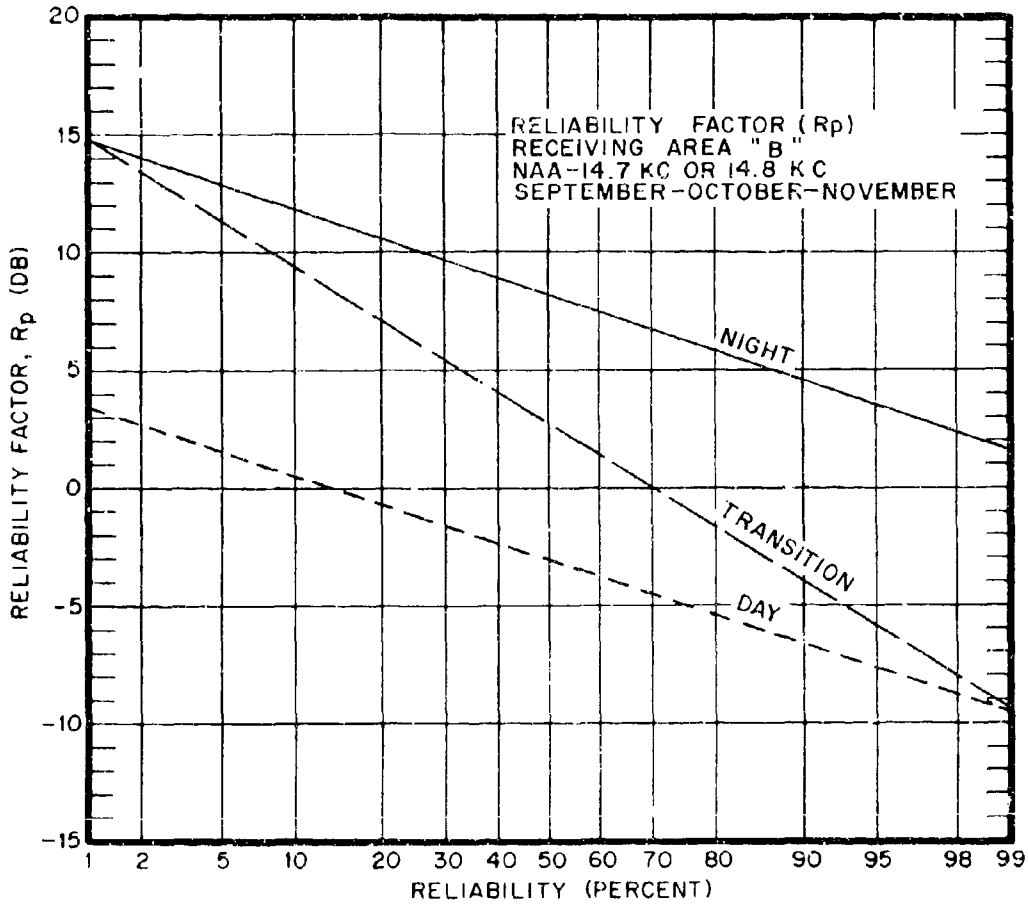


Figure B11 - Reliability factor, R_p, for NAA (14.7 or 14.8 Kc) transmissions into receiving area "B" for fall months

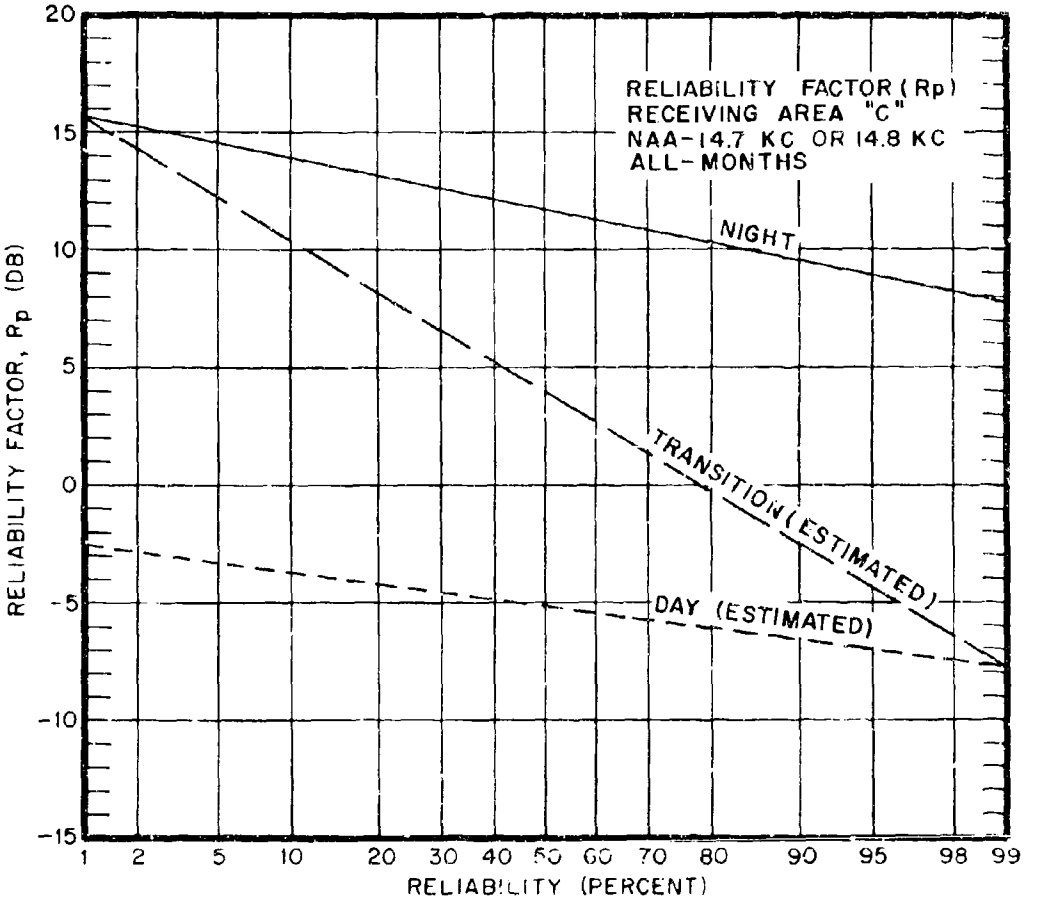


Figure B12 - Reliability factor, R_p, for NAA (14.7 or 14.8 Kc) transmissions into receiving area "C" for all months

SECRET

TABLE NO. B1

TRANSMITTER: NAA

RECEIVER: Lat. 52.5°N to 57.5°N
Long. 15°W to 25°W

TIME (± 30 Min) Z	JAN 1 11 21 / 10 20 31	FEB 1 11 21 / 10 20 28	MAR 1 11 21 / 10 20 31	APR 1 11 21 / 10 20 30	MAY 1 11 21 / 10 20 31	JUN 1 11 21 / 10 20 30	JUL 1 11 21 / 10 20 31	AUG 1 11 21 / 10 20 31	SEP 1 11 21 / 10 20 30	OCT 1 11 21 / 10 20 31	NOV 1 11 21 / 10 20 30	DEC 1 11 21 / 10 20 31
0000	N N N	N N N	N N N	- - -	- - -	D D D	D D -	- - -	- N N	N N N	N N N	N N N
0100	N N N	N N N	N N N	N - -	- D D	- - -	- N N	N N N	N N N	N N N	N N N	N N N
0200	N N N	N N N	N N N	N N N	N N -	- - -	- N N	N N N	N N N	N N N	N N N	N N N
0300	N N N	N N N	N N N	N N N	N - -	- - -	- - N	N N N	N N N	N N N	N N N	N N N
0400	N N N	N N N	N N N	N N N	- - -	- - -	- - -	- N N	N N N	N N N	N N N	N N N
0500	N N N	N N N	N N N	N - -	- - -	- - -	- - -	- - -	N N N	N N N	N N N	N N N
0600	N N N	N N N	N N -	- - -	- - -	- - -	- - -	- - -	- - -	N N N	N N N	N N N
0700	N N N	N N N	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	N N N	N N N
0800	N N -	- - -	- - -	- - -	D D D	D D D	D D D	- - -	- - -	- - -	- - -	- N N
0900	- - -	- - -	- - -	D D D	D D D	D D D	D D D	D D D	D - -	- - -	- - -	- - -
1000	- - -	- - -	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	- - -	- - -
1100	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1200	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1300	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1400	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1500	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1600	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1700	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1800	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1900	- - D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	- - -	- - -
2000	- - -	- - D	D D D	D D D	D D D	D D D	T D D	D D D	D D D	D - -	- - -	- - -
2100	- - -	- - -	- - D	D D D	D D D	D D D	D D D	D D D	D - -	- - -	- - -	- - -
2200	- - -	- - -	- - -	- - D	D D D	D D D	D D D	D D D	- - -	- - -	- - -	N N -
2300	N N N	N - -	- - -	- - -	- D D	D D D	D D D	D - -	- - -	N N N	N N N	N N N
2400	N N N	N N N	N N N	- - -	- - -	D D D	D D -	- - -	- N N	N N N	N N N	N N N

SECRET

TABLE NO. B2

TRANSMITTER: NAA

RECEIVER: Lat. 52.5°N to 57.5°N
Long. 5°W to 15°W

TIME (± 30 Min) Z	JAN 1 10	JAN 11 20	JAN 21 31	FEB 1 10	FEB 11 20	FEB 21 28	MAR 1 10	MAR 11 20	MAR 21 31	APR 1 10	APR 11 20	APR 21 30	MAY 1 10	MAY 11 20	MAY 21 31	JUN 1 10	JUN 11 20	JUN 21 30	JUL 1 10	JUL 11 20	JUL 21 31	AUG 1 10	AUG 11 20	AUG 21 31	SEP 1 10	SEP 11 20	SEP 21 30	OCT 1 10	OCT 11 20	OCT 21 31	NOV 1 10	NOV 11 20	NOV 21 30	DEC 1 10	DEC 11 20	DEC 21 31
0000	N	N	N	N	N	N	N	N	N	-	-	-	-	-	-	D	D	D	D	-	-	-	-	-	-	N	N	N	N	N	N	N	N	N	N	N
0100	N	N	N	N	N	N	N	N	N	N	N	N	N	-	-	-	D	D	-	-	-	-	N	N	N	N	N	N	N	N	N	N	N	N	N	N
0200	N	N	N	N	N	N	N	N	N	N	N	N	N	N	-	-	-	-	-	-	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
0300	N	N	N	N	N	N	N	N	N	N	N	N	N	-	-	-	-	-	-	-	-	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
0400	N	N	N	N	N	N	N	N	N	N	N	-	-	-	-	-	-	-	-	-	-	-	-	N	N	N	N	N	N	N	N	N	N	N	N	N
0500	N	N	N	N	N	N	N	N	N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N	N	N	N	N	N	N	N	N	N
0600	N	N	N	N	N	N	N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N	N	N	N	N
0700	N	N	N	N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N	N	N
0800	-	-	-	-	-	-	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0900	-	-	-	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	-	-	-	-	-
1000	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-
1100	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
1200	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
1300	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
1400	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
1500	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
1600	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
1700	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
1800	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-
1900	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	-	-	-
2000	-	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	-	-	-	-
2100	-	-	-	-	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	-	-	-	-	-	-
2200	-	-	-	-	-	-	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	-	-	-	-	-	-	N	N	-
2300	N	N	N	N	-	-	-	-	-	-	-	-	-	-	D	D	D	D	D	D	-	-	-	-	-	-	-	N	N	N	N	N	N	N	N	N
2400	N	N	N	N	N	N	N	N	N	-	-	-	-	-	-	D	D	D	D	-	-	-	-	-	-	N	N	N	N	N	N	N	N	N	N	N

SECRET

TABLE NO. B3

TRANSMITTER: NAA

RECEIVER: Lat. 52.5°N to 57.5°N
Long. 5°W to 5°E

TIME (± 30 Min) Z	JAN 1 10	JAN 11 20	JAN 21 31	FEB 1 10	FEB 11 20	FEB 21 28	MAR 1 10	MAR 11 20	MAR 21 31	APR 1 10	APR 11 20	APR 21 30	MAY 1 10	MAY 11 20	MAY 21 31	JUN 1 10	JUN 11 20	JUN 21 30	JUL 1 10	JUL 11 20	JUL 21 31	AUG 1 10	AUG 11 20	AUG 21 31	SEP 1 10	SEP 11 20	SEP 21 30	OCT 1 10	OCT 11 20	OCT 21 31	NOV 1 10	NOV 11 20	NOV 21 30	DEC 1 10	DEC 11 20	DEC 21 31
0000	N	N	N	N	N	N	N	N	N	-	-	-	-	-	-	D	D	D	-	-	-	-	-	-	-	N	N	N	N	N	N	N	N	N	N	N
0100	N	N	N	N	N	N	N	N	N	N	N	N	N	-	-	-	D	D	-	-	-	-	N	N	N	N	N	N	N	N	N	N	N	N	N	N
0200	N	N	N	N	N	N	N	N	N	N	N	N	N	-	-	-	-	-	-	-	-	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
0300	N	N	N	N	N	N	N	N	N	N	N	-	-	-	-	-	-	-	-	-	-	-	-	N	N	N	N	N	N	N	N	N	N	N	N	N
0400	N	N	N	N	N	N	N	N	N	N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N	N	N	N	N	N	N	N	N	N	N
0500	N	N	N	N	N	N	N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N	N	N	N	N	N	N
0600	N	N	N	N	N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N	N	N	N
0700	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0800	-	-	-	-	-	-	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0900	-	-	-	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	-	-	-	-	-
1000	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-
1100	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
1200	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
1300	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
1400	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
1500	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
1600	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
1700	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
1800	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-
1900	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	-	-	-
2000	-	-	-	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	-	-	-	-	-
2100	-	-	-	-	-	-	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	-	-	-	-	-	-	-
2200	-	-	-	-	-	-	-	-	-	-	-	-	-	D	D	D	D	D	D	D	D	-	-	-	-	-	-	-	-	-	-	-	N	N	-	
2300	N	N	N	N	-	-	-	-	-	-	-	-	-	-	D	D	D	D	D	-	-	-	-	-	-	-	-	N	N	N	N	N	N	N	N	N
2400	N	N	N	N	N	N	N	N	N	-	-	-	-	-	-	D	D	D	-	-	-	-	-	-	-	N	N	N	N	N	N	N	N	N	N	N

TABLE NO. B4

TRANSMITTER: NAA

RECEIVER: Lat. 57.5°N to 62.5°N
Long 15°W to 27°W

TIME (± 30 Min) Z	JAN 1 11 21 / 10 20 31	FEB 1 11 21 / 10 20 28	MAR 1 11 21 / 10 20 31	APR 1 11 21 / 10 20 30	MAY 1 11 21 / 10 20 31	JUN 1 11 21 / 10 20 30	JUL 1 11 21 / 10 20 31	AUG 1 11 21 / 10 20 31	SEP 1 11 21 / 10 20 30	OCT 1 11 21 / 10 20 31	NOV 1 11 21 / 10 20 30	DEC 1 11 21 / 10 20 31
0000	N N N	N N N	N N N	- - -	- D D	D D D	D D D	D - -	- N N	N N N	N N N	N N N
0100	N N N	N N N	N N N	N N N	N - D	D D D	D D D	- N N	N N N	N N N	N N N	N N N
0200	N N N	N N N	N N N	N N N	N - -	- - -	- - -	N N N	N N N	N N N	N N N	N N N
0300	N N N	N N N	N N N	N N N	- - -	- - -	- - -	- N N	N N N	N N N	N N N	N N N
0400	N N N	N N N	N N N	N N -	- - -	- - -	- - -	- - N	N N N	N N N	N N N	N N N
0500	N N N	N N N	N N N	- - -	- - -	- - -	- - -	- - -	- N N	N N N	N N N	N N N
0600	N N N	N N N	N N -	- - -	- - -	- - -	- - -	- - -	- - -	N N N	N N N	N N N
0700	N N N	N N N	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	N N N	N N N
0800	N N N	- - -	- - -	- - -	D D D	D D D	D D D	- - -	- - -	- - -	- - -	N N N
0900	- - -	- - -	- - -	D D D	D D D	D D D	D D D	D D D	D - -	- - -	- - -	- - -
1000	- - -	- - -	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	- - -	- - -
1100	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1200	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1300	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1400	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1500	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1600	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1700	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1800	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1900	- - -	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	- - -	- - -
2000	- - -	- - D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D - -	- - -	- - -
2100	- - -	- - -	- - D	D D D	D D D	D D D	D D D	D D D	D D -	- - -	- - -	- - -
2200	- - -	- - -	- - -	- D D	D D D	D D D	D D D	D D D	- - -	- - -	- - -	N N -
2300	N N N	N - -	- - -	- - D	D D D	D D D	D D D	D D -	- - -	N N N	N N N	N N N
2400	N N N	N N N	N N N	- - -	- D D	D D D	D D D	D - -	- N N	N N N	N N N	N N N

TABLE NO. B5

TRANSMITTER: NAA

RECEIVER: Lat. 57.5°N to 62.5°N
Long. 5°W to 15°W

TIME	JAN			FEB			MAR			APR			MAY			JUN			JUL			AUG			SEP			OCT			NOV			DEC		
(± 30 Min)	1	11	21	1	11	21	1	11	21	1	11	21	1	11	21	1	11	21	1	11	21	1	11	21	1	11	21	1	11	21	1	11	21	1	11	21
Z	10	20	31	10	20	28	10	20	31	10	20	30	10	20	31	10	20	30	10	20	31	10	20	31	10	20	30	10	20	31	10	20	30	10	20	31
0000	N	N	N	N	N	N	N	N	N	-	-	-	-	D	D	D	D	D	D	D	D	D	-	-	-	N	N	N	N	N	N	N	N	N	N	N
0100	N	N	N	N	N	N	N	N	N	N	N	N	N	-	D	D	D	D	D	D	D	-	N	N	N	N	N	N	N	N	N	N	N	N	N	N
0200	N	N	N	N	N	N	N	N	N	N	N	N	-	-	-	-	-	-	-	-	-	-	N	N	N	N	N	N	N	N	N	N	N	N	N	N
0300	N	N	N	N	N	N	N	N	N	N	N	-	-	-	-	-	-	-	-	-	-	-	-	N	N	N	N	N	N	N	N	N	N	N	N	N
0400	N	N	N	N	N	N	N	N	N	N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N	N	N	N	N	N	N	N	N	N	N	N
0500	N	N	N	N	N	N	N	N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N	N	N	N	N	N	N	N	N	N
0600	N	N	N	N	N	N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N	N	N	N	N	N	N
0700	N	N	N	N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N	N	N	N
0800	-	-	-	-	-	-	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0900	-	-	-	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	-	-	-	-	-
1000	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-
1100	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
1200	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
1300	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
1400	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
1500	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
1600	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
1700	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
1800	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-
1900	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	-
2000	-	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	-	-	-
2100	-	-	-	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	-	-	-	-	-
2200	-	-	-	-	-	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	-	-	-	N	N	-
2300	N	N	N	N	-	-	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	N	N	N	N	N	N	N	N	N
2400	N	N	N	N	N	N	N	N	N	-	-	-	-	D	D	D	D	D	D	D	D	-	-	-	-	N	N	N	N	N	N	N	N	N	N	N

SECRET

TABLE NO. B6

TRANSMITTER: NAA

RECEIVER: Lat. 57.5°N to 62.5°N
Long. 5°W to 5°E

TIME (± 30 Min) Z	JAN 1 11 21			FEB 1 11 21			MAR 1 11 21			APR 1 11 21			MAY 1 11 21			JUN 1 11 21			JUL 1 11 21			AUG 1 11 21			SEP 1 11 21			OCT 1 11 21			NOV 1 11 21			DEC 1 11 21		
	10	20	31	10	20	28	10	20	31	10	20	30	10	20	31	10	20	30	10	20	31	10	20	31	10	20	30	10	20	31	10	20	30	10	20	31
0000	N	N	N	N	N	N	N	N	N	-	-	-	-	D	D	D	D	D	D	D	D	-	-	-	-	N	N	N	N	N	N	N	N	N	N	N
0100	N	N	N	N	N	N	N	N	N	N	N	N	-	-	D	D	D	D	D	D	D	-	N	N	N	N	N	N	N	N	N	N	N	N	N	N
0200	N	N	N	N	N	N	N	N	N	N	N	N	-	-	-	-	-	-	-	-	-	-	N	N	N	N	N	N	N	N	N	N	N	N	N	N
0300	N	N	N	N	N	N	N	N	N	N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N	N	N	N	N	N	N	N	N	N	N	N
0400	N	N	N	N	N	N	N	N	N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N	N	N	N	N	N	N	N	N	N
0500	N	N	N	N	N	N	N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N	N	N	N	N	N	N	N
0600	N	N	N	N	N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N	N	N	N	N
0700	N	N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N	N
0800	-	-	-	-	-	-	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0900	-	-	-	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	-	-	-	-	-
1000	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-
1100	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
1200	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
1300	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
1400	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
1500	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
1600	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
1700	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-
1800	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	-
1900	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	-	-	-
2000	-	-	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	-	-	-	-	-
2100	-	-	-	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	-	-	-	-	-	-
2200	-	-	-	-	-	-	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	-	-	-	-	N	N	-
2300	N	N	N	N	-	-	-	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	-	-	-	-	-	N	N	N	N	N	N	N	N	N
2400	N	N	N	N	N	N	N	N	N	-	-	-	-	D	D	D	D	D	D	D	D	-	-	-	-	N	N	N	N	N	N	N	N	N	N	N

SECRET

TABLE NO. B7

TRANSMITTER: NAA

RECEIVER: Lat. 62.5°N to 67.5°N, Long. 15°W to 25°W

TIME (± 30 Min) Z	JAN 1 10	JAN 11 20	JAN 21 31	FEB 1 10	FEB 11 20	FEB 21 28	MAR 1 10	MAR 11 20	MAR 21 31	APR 1 10	APR 11 20	APR 21 30	MAY 1 10	MAY 11 20	MAY 21 31	JUN 1 10	JUN 11 20	JUN 21 30	JUL 1 10	JUL 11 20	JUL 21 31	AUG 1 10	AUG 11 20	AUG 21 31	SEP 1 10	SEP 11 20	SEP 21 30	OCT 1 10	OCT 11 20	OCT 21 31	NOV 1 10	NOV 11 20	NOV 21 30	DEC 1 10	DEC 11 20	DEC 21 31
0000	N	N	N	N	N	N	N	N	N	-	-	D	D	D	D	D	D	D	D	D	D	D	D	-	-	N	N	N	N	N	N	N	N	N	N	N
0100	N	N	N	N	N	N	N	N	N	N	N	-	-	D	D	D	D	D	D	D	D	D	-	N	N	N	N	N	N	N	N	N	N	N	N	N
0200	N	N	N	N	N	N	N	N	N	N	N	-	-	-	-	-	-	-	-	-	-	-	-	N	N	N	N	N	N	N	N	N	N	N	N	N
0300	N	N	N	N	N	N	N	N	N	N	N	-	-	-	-	-	-	-	-	-	-	-	-	N	N	N	N	N	N	N	N	N	N	N	N	N
0400	N	N	N	N	N	N	N	N	N	N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N	N	N	N	N	N	N	N	N	N	N	N
0500	N	N	N	N	N	N	N	N	N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N	N	N	N	N	N	N	N	N	N
0600	N	N	N	N	N	N	N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N	N	N	N	N	N
0700	N	N	N	N	N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N	N	N	N	N	N	N
0800	N	N	N	-	-	-	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	-	-	-	-	-	N	N	N	N
0900	-	-	-	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	-	-	-	-	-
1000	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	D	D	D	-	-	-	-	-
1100	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
1200	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
1300	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
1400	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
1500	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
1600	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
1700	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
1800	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-
1900	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-
2000	-	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	-	-	-
2100	-	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	-	-	-
2200	-	-	-	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	-	-	N	N	-
2300	N	N	N	N	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	N	N	N	N	N	N	N	N	N
2400	N	N	N	N	N	N	N	N	N	-	-	D	D	D	D	D	D	D	D	D	D	D	D	-	-	N	N	N	N	N	N	N	N	N	N	N

TABLE NO. B8

TRANSMITTER: NAA

RECEIVER: Lat. 62.5°N to 67.5°N
Long. 5°W to 15°W

TIME (± 30 Min) Z	JAN 1 11 21 / 10 20 31	FEB 1 11 21 / 10 29 28	MAR 1 11 21 / 10 20 31	APR 1 11 21 / 10 20 30	MAY 1 11 21 / 10 20 31	JUN 1 11 21 / 10 20 30	JUL 1 11 21 / 10 20 31	AUG 1 11 21 / 10 20 31	SEP 1 11 21 / 10 20 30	OCT 1 11 21 / 10 20 31	NOV 1 11 21 / 10 20 30	DEC 1 11 21 / 10 20 31
0000	N N N	N N N	N N N	- - D	D D D	D D D	D D D	D D -	- N N	N N N	N N N	N N N
0100	N N N	N N N	N N N	N N -	- - D	D D D	D D D	- - N	N N N	N N N	N N N	N N N
0200	N N N	N N N	N N N	N N -	- - -	- - -	- - -	- - N	N N N	N N N	N N N	N N N
0300	N N N	N N N	N N N	N - -	- - -	- - -	- - -	- - -	N N N	N N N	N N N	N N N
0400	N N N	N N N	N N N	- - -	- - -	- - -	- - -	- - -	- N N	N N N	N N N	N N N
0500	N N N	N N N	N N -	- - -	- - -	- - -	- - -	- - -	- - -	N N N	N N N	N N N
0600	N N N	N N N	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	N N N	N N N
0700	N N N	N - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- N N	N N N
0800	N - -	- - -	- - -	- - -	D D D	D D D	D D D	- - -	- - -	- - -	- - -	- N N
0900	- - -	- - -	- - -	. D D	D D D	D D D	D D D	D D D	D - -	- - -	- - -	- - -
1000	- - -	- - -	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	- - -	- - -
1100	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1200	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1300	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1400	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1500	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1600	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1700	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1800	- - D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D - -	- - -
1900	- - -	- D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D -	- - -	- - -
2000	- - -	- - -	- D D	D D D	D D D	D D D	D D D	D D D	D D D	- - -	- - -	- - -
2100	- - -	- - -	- - D	D D D	D D D	D D D	D D D	D D D	D D -	- - -	- - -	- - -
2200	- - -	- - -	- - -	- D D	D D D	D D D	D D D	D D D	- - -	- - -	- - -	N N -
2300	N N N	N - -	- - -	- - D	D D D	D D D	D D D	D D D	- - -	N N N	N N N	N N N
2400	N N N	N N N	N N N	- - D	D D D	D D D	D D D	D D D	- N N	N N N	N N N	N N N

SECRET

TABLE NO. B9

TRANSMITTER: NAA

RECEIVER: Lat 62.5°N to 67.5°N, Long 5°W to 5°E

TIME (± 30 Min) Z	JAN 1 11 21			FEB 1 11 21			MAR 1 11 21			APR 1 11 21			MAY 1 11 21			JUN 1 11 21			JUL 1 11 21			AUG 1 11 21			SEP 1 11 21			OCT 1 11 21			NOV 1 11 21			DEC 1 11 21		
	10	20	31	10	20	28	10	20	31	10	20	30	10	20	31	10	20	30	10	20	31	10	20	31	10	20	30	10	20	31	10	20	30	10	20	31
0000	N	N	N	N	N	N	N	N	N	-	-	D	D	D	D	D	D	D	D	D	D	D	D	-	-	N	N	N	N	N	N	N	N	N	N	N
0100	N	N	N	N	N	N	N	N	N	N	N	-	-	-	D	D	D	D	D	D	D	-	-	N	N	N	N	N	N	N	N	N	N	N	N	N
0200	N	N	N	N	N	N	N	N	N	N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N	N	N	N	N	N	N	N	N	N	N	N
0300	N	N	N	N	N	N	N	N	N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N	N	N	N	N	N	N	N	N	N	N
0400	N	N	N	N	N	N	N	N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N	N	N	N	N	N	N	N	N	N
0500	N	N	N	N	N	N	N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N	N	N	N	N	N	N	N
0600	N	N	N	N	N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N	N	N	N	N	N
0700	N	N	N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N	N	N
0800	-	-	-	-	-	-	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0900	-	-	-	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	-	-	-	-	-
1000	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-
1100	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
1200	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
1300	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
1400	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
1500	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
1600	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
1700	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-
1800	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	-
1900	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	-	-
2000	-	-	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	-	-	-	-
2100	-	-	-	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	-	-	-	-	-
2200	-	-	-	-	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	-	-	-	N	N	-
2300	N	N	N	N	-	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	N	N	N	N	N	N	N	N	N
2400	N	N	N	N	N	N	N	N	N	-	-	D	D	D	D	D	D	D	D	D	D	D	D	-	-	N	N	N	N	N	N	N	N	N	N	N

99

SECRET

TABLE NO. B10

TRANSMITTER: NAA

RECEIVER: Lat. 62.5°N to 67.5°N
Long. 5°E to 15°E

TIME (± 30 Min) Z	JAN 1	JAN 11	JAN 21	FEB 1	FEB 11	FEB 21	MAR 1	MAR 11	MAR 21	APR 1	APR 11	APR 21	MAY 1	MAY 11	MAY 21	JUN 1	JUN 11	JUN 21	JUL 1	JUL 11	JUL 21	AUG 1	AUG 11	AUG 21	SEP 1	SEP 11	SEP 21	OCT 1	OCT 11	OCT 21	NOV 1	NOV 11	NOV 21	DEC 1	DEC 11	DEC 21
	10	20	31	10	20	28	10	20	31	10	20	30	10	20	31	10	20	30	10	20	31	10	20	31	10	20	30	10	20	31	10	20	30	10	20	31
0000	N	N	N	N	N	N	N	N	N	-	-	D	D	D	D	D	D	D	D	D	D	D	D	-	-	N	N	N	N	N	N	N	N	N	N	N
0100	N	N	N	N	N	N	N	N	N	N	N	-	-	-	D	D	D	D	D	D	D	-	-	-	N	N	N	N	N	N	N	N	N	N	N	N
0200	N	N	N	N	N	N	N	N	N	N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N	N	N	N	N	N	N	N	N	N	N	N
0300	N	N	N	N	N	N	N	N	N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N	N	N	N	N	N	N	N	N	N
0400	N	N	N	N	N	N	N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N	N	N	N	N	N	N	N
0500	N	N	N	N	N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N	N	N	N	N	N
0600	N	N	N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N	N	N	N	N	N	N
0700	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0800	-	-	-	-	-	-	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0900	-	-	-	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	-	-	-	-	-
1000	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-
1100	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
1200	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
1300	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
1400	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
1500	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
1600	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-
1700	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-
1800	-	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	-	-
1900	-	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	-	-	-
2000	-	-	-	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	-	-	-	-	-
2100	-	-	-	-	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	-	-	-	-	-	-
2200	-	-	-	-	-	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	-	-	-	-	N	N	-
2300	N	N	N	N	-	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	N	N	N	N	N	N	N	N	N
2400	N	N	N	N	N	N	N	N	N	-	-	D	D	D	D	D	D	D	D	D	D	D	D	-	-	N	N	N	N	N	N	N	N	N	N	N

SECRET

TABLE NO. B11

TRANSMITTER: NAA

RECEIVER: Lat. 67.5°N to 72.5°N
Long. 15°W to 25°W

TIME (± 30 Min) Z	JAN 1 11 21 10 20 31	FEB 1 11 21 10 20 28	MAR 1 11 21 10 20 31	APR 1 11 21 10 20 30	MAY 1 11 21 10 20 31	JUN 1 11 21 10 20 30	JUL 1 11 21 10 20 31	AUG 1 11 21 10 20 31	SEP 1 11 21 10 20 30	OCT 1 11 21 10 20 31	NOV 1 11 21 10 20 30	DEC 1 11 21 10 20 31
0000	N N N	N N N	N N N	- D D	D D D	D D D	D D D	D D D	- N N	N N N	N N N	N N N
0100	N N N	N N N	N N N	N - -	- - D	D D D	D D D	- - -	N N N	N N N	N N N	N N N
0200	N N N	N N N	N N N	N - -	- - -	- - -	- - -	- - -	- N N	N N N	N N N	N N N
0300	N N N	N N N	N N N	N - -	- - -	- - -	- - -	- - -	- N N	N N N	N N N	N N N
0400	N N N	N N N	N N N	- - -	- - -	- - -	- - -	- - -	- - -	N N N	N N N	N N N
0500	N N N	N N N	N N -	- - -	- - -	- - -	- - -	- - -	- - -	- N N	N N N	N N N
0600	N N N	N N N	N - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	N N N	N N N
0700	N N N	N N -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- N N	N N N
0800	N N N	N - -	- - -	- - -	D D D	D D D	D D D	- - -	- - -	- - -	- - -	N N N
0900	N N -	- - -	- - -	D D D	D D D	D D D	D D D	D D D	D - -	- - -	- - -	- - -
1000	- - -	- - -	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1100	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1200	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1300	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1400	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1500	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1600	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1700	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D - -	- - -
1800	- - D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	- - -	- - -
1900	- - -	- D D	D D D	D D D	D D D	D D D	D D D	D D D	D - -	- - -	- - -	- - -
2000	- - -	- - D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	- - -	- - -	- - -
2100	- - -	- - -	- D D	D D D	D D D	D D D	D D D	D D D	D D -	- - -	- - -	N N -
2200	- - -	- - -	- - D	D D D	D D D	D D D	D D D	D D D	D - -	N N N	N N N	N N N
2300	N N N	N - -	- - -	D D D	D D D	D D D	D D D	D D D	D - -	N N N	N N N	N N N
2400	N N N	N N N	N N N	- D D	D D D	D D D	D D D	D D D	- N N	N N N	N N N	N N N

SECRET

SECRET

TABLE NO. B12

TRANSMITTER: NAA

RECEIVER: Lat. 67.5°N to 72.5°N
Long. 5°W to 15°W

TIME (± 30 Min) Z	JAN 1	JAN 11	JAN 21	FEB 1	FEB 11	FEB 21	MAR 1	MAR 11	MAR 21	APR 1	APR 11	APR 21	MAY 1	MAY 11	MAY 21	JUN 1	JUN 11	JUN 21	JUL 1	JUL 11	JUL 21	AUG 1	AUG 11	AUG 21	SEP 1	SEP 11	SEP 21	OCT 1	OCT 11	OCT 21	NOV 1	NOV 11	NOV 21	DEC 1	DEC 11	DEC 21
	10	20	31	10	20	28	10	20	31	10	20	30	10	20	31	10	20	30	10	20	31	10	20	31	10	20	30	10	20	31	10	20	30	10	20	31
0000	N	N	N	N	N	N	N	N	N	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	N	N	N	N	N	N	N	N	N	N
0100	N	N	N	N	N	N	N	N	N	N	-	-	-	-	D	D	D	D	D	D	D	-	-	-	N	N	N	N	N	N	N	N	N	N	N
0200	N	N	N	N	N	N	N	N	N	N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N	N	N	N	N	N	N	N	N	N	N
0300	N	N	N	N	N	N	N	N	N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N	N	N	N	N	N	N	N	N	N
0400	N	N	N	N	N	N	N	N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N	N	N	N	N	N	N	N	N
0500	N	N	N	N	N	N	N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N	N	N	N	N	N	N
0600	N	N	N	N	N	N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N	N	N	N	N	N
0700	N	N	N	N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N	N	N	N
0800	N	N	N	-	-	-	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	-	-	-	-	-	-	N	N	N
0830	-	-	-	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	-	-	-	-
0900	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-
1000	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
1200	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
1300	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
1400	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
1500	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
1600	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
1700	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-
1800	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-
1900	-	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-
2000	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	-	-
2100	-	-	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	-	-	-
2200	-	-	-	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	N	N	-
2300	N	N	N	N	-	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	N	N	N	N	N	N	N	N
2400	N	N	N	N	N	N	N	N	N	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	N	N	N	N	N	N	N	N	N	N

SECRET

TABLE NO. B13

TRANSMITTER: NAA

RECEIVER: Lat. 67.5°N to 72.5°N
Long. 5°W to 5°E

TIME (± 30 Min) Z	JAN 1 11 21 10 20 31	FEB 1 11 21 10 20 28	MAR 1 11 21 10 20 31	APR 1 11 21 10 20 30	MAY 1 11 21 10 20 31	JUN 1 11 21 10 20 30	JUL 1 11 21 10 20 31	AUG 1 11 21 10 20 31	SEP 1 11 21 10 20 30	OCT 1 11 21 10 20 31	NOV 1 11 21 10 20 30	DEC 1 11 21 10 20 31
0000	N N N	N N N	N N N	- D D	D D D	D D D	D D D	D D D	- N N	N N N	N N N	N N N
0100	N N N	N N N	N N N	N - -	- - D	D D D	D D D	- - -	N N N	N N N	N N N	N N N
0200	N N N	N N N	N N N	- - -	- - -	- - -	- - -	- - -	N N	N N N	N N N	N N N
0300	N N N	N N N	N N N	- - -	- - -	- - -	- - -	- - -	- - N	N N N	N N N	N N N
0400	N N N	N N N	N N -	- - -	- - -	- - -	- - -	- - -	- - -	N N N	N N N	N N N
0500	N N N	N N N	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - N	N N N	N N N
0600	N N N	N N -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	N N N	N N N
0700	N N N	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - N	N N N
0800	- - -	- - -	- - -	- - -	D D D	D D D	D D D	- - -	- - -	- - -	- - -	- - -
0900	- - -	- - -	- - -	D D D	D D D	D D D	D D D	D D D	D - -	- - -	- - -	- - -
1000	- - -	- - -	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	- - -	- - -
1100	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1200	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1300	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1400	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1500	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1600	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D
1700	- - D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	- - -	- - -
1800	- - -	- D D	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D D -	- - -	- - -
1900	- - -	- - -	D D D	D D D	D D D	D D D	D D D	D D D	D D D	D - -	- - -	- - -
2000	- - -	- - -	- D D	D D D	D D D	D D D	D D D	D D D	D D D	- - -	- - -	- - -
2100	- - -	- - -	- - D	D D D	D D D	D D D	D D D	D D D	D D -	- - -	- - -	- - -
2200	- - -	- - -	- - -	D D D	D D D	D D D	D D D	D D D	D - -	- - -	- - -	N N -
2300	N N N	N - -	- - -	- D D	D D D	D D D	D D D	D D D	- - -	N N N	N N N	N N N
2400	N N N	N N N	N N N	- D D	D D D	D D D	D D D	D D D	- N N	N N N	N N N	N N N

TABLE NO. B14

TRANSMITTER: NAA

RECEIVER: Lat. 67.5°N to 72.5°N
Long. 5°E to 15°E

TIME (± 30 Min) Z	JAN 1 10	JAN 11 20	JAN 21 31	FEB 1 10	FEB 11 20	FEB 21 28	MAR 1 10	MAR 11 20	MAR 21 31	APR 1 10	APR 11 20	APR 21 30	MAY 1 10	MAY 11 20	MAY 21 31	JUN 1 10	JUN 11 20	JUN 21 30	JUL 1 10	JUL 11 20	JUL 21 31	AUG 1 10	AUG 11 20	AUG 21 31	SEP 1 10	SEP 11 20	SEP 21 30	OCT 1 10	OCT 11 20	OCT 21 31	NOV 1 10	NOV 11 20	NOV 21 30	DEC 1 10	DEC 11 20	DEC 21 31
0000	N	N	N	N	N	N	N	N	N	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	N	N	N	N	N	N	N	N	N	N	N
0100	N	N	N	N	N	N	N	N	N	N	-	-	-	-	D	D	D	D	D	D	D	-	-	-	-	N	N	N	N	N	N	N	N	N	N	N
0200	N	N	N	N	N	N	N	N	N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N	N	N	N	N	N	N	N	N	N	N
0300	N	N	N	N	N	N	N	N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N	N	N	N	N	N	N	N	N
0400	N	N	N	N	N	N	N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N	N	N	N	N	N	N	N
0500	N	N	N	N	N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N	N	N	N	N	N
0600	N	N	N	N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N	N	N	N	N
0700	N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N	N	N	N
0800	-	-	-	-	-	-	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0900	-	-	-	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	-	-	-	-	-
1000	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-
1100	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
1200	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
1300	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
1400	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
1500	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
1600	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-
1700	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-
1800	-	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	-	-
1900	-	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	-	-	-
2000	-	-	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	-	-	-	-
2100	-	-	-	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	-	-	-	-	-
2200	-	-	-	-	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	-	-	-	-	N	N	-
2300	N	N	N	N	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	N	N	N	N	N	N	N	N	N
2400	N	N	N	N	N	N	N	N	N	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	N	N	N	N	N	N	N	N	N	N	N

SECRET

TABLE NO. B15

TRANSMITTER: NAA

RECEIVER: Lat. 67.5°N to 72.5°N, Long. 15°E to 25°E

TIME (± 30 Min) Z	JAN 1 10	JAN 11 20	JAN 21 31	FEB 1 10	FEB 11 20	FEB 21 28	MAR 1 10	MAR 11 20	MAR 21 31	APR 1 10	APR 11 20	APR 21 30	MAY 1 10	MAY 11 20	MAY 21 31	JUN 1 10	JUN 11 20	JUN 21 30	JUL 1 10	JUL 11 20	JUL 21 31	AUG 1 10	AUG 11 20	AUG 21 31	SEP 1 10	SEP 11 20	SEP 21 30	OCT 1 10	OCT 11 20	OCT 21 31	NOV 1 10	NOV 11 20	NOV 21 30	DEC 1 10	DEC 11 20	DEC 21 31
0000	N	N	N	N	N	N	N	N	N	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	N	N	N	N	N	N	N	N	N	N	N
0100	N	N	N	N	N	N	N	N	N	-	-	-	-	-	D	D	D	D	D	D	D	-	-	-	-	N	N	N	N	N	N	N	N	N	N	N
0200	N	N	N	N	N	N	N	N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N	N	N	N	N	N	N	N	N	N
0300	N	N	N	N	N	N	N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N	N	N	N	N	N	N	N
0400	N	N	N	N	N	N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N	N	N	N	N	N	N
0500	N	N	N	N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N	N	N	N	N	N
0600	N	N	N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N	N	N	N
0700	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0800	-	-	-	-	-	-	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0900	-	-	-	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	-	-	-	-	-
1000	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-
1100	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
1200	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
1300	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
1400	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
1500	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-
1600	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-
1700	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-
1800	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	-	-	-
1900	-	-	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	-	-	-	-
2000	-	-	-	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	-	-	-	-	-
2100	-	-	-	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	-	-	-	-	-
2200	-	-	-	-	-	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	-	N	N	-	-	-
2300	N	N	N	N	-	-	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	N	N	N	N	N	N	N	N	N
2400	N	N	N	N	N	N	N	N	N	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	N	N	N	N	N	N	N	N	N	N	N

SECRET

TABLE NO. B16

TRANSMITTER: NAA

RECEIVER: Lat. 72.5°N to 77.5°N, Long. 15°W to 25°W

TIME (± 30 Min) Z	JAN 1	JAN 11	JAN 21	FEB 1	FEB 11	FEB 21	MAR 1	MAR 11	MAR 21	APR 1	APR 11	APR 21	MAY 1	MAY 11	MAY 21	JUN 1	JUN 11	JUN 21	JUL 1	JUL 11	JUL 21	AUG 1	AUG 11	AUG 21	SEP 1	SEP 11	SEP 21	OCT 1	OCT 11	OCT 21	NOV 1	NOV 11	NOV 21	DEC 1	DEC 11	DEC 21
	10	20	31	10	20	28	10	20	31	10	20	30	10	20	31	10	20	30	10	20	31	10	20	31	10	20	30	10	20	31	10	20	30	10	20	31
0000	N	N	N	N	N	N	N	N	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	N	N	N	N	N	N	N	N	N
0100	N	N	N	N	N	N	N	N	N	-	-	-	-	-	D	D	D	D	D	D	D	-	-	-	-	N	N	N	N	N	N	N	N	N	N
0200	N	N	N	N	N	N	N	N	N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N	N	N	N	N	N	N	N	N
0300	N	N	N	N	N	N	N	N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N	N	N	N	N	N	N	N	N
0400	N	N	N	N	N	N	N	N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N	N	N	N	N	N	N	N	N
0500	N	N	N	N	N	N	N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N	N	N	N	N	N	N	N
0600	N	N	N	N	N	N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N	N	N	N	N	N	N
0700	N	N	N	N	N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N	N	N	N	N	N
0800	N	N	N	N	-	-	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	-	-	-	-	N	N	N	N	N
0900	N	N	-	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	-	N	N	N	N
1000	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-
1100	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
1200	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
1300	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
1400	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
1500	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
1600	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
1700	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-
1800	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-
1900	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-
2000	-	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	-
2100	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	-	-
2200	-	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	N	N	-
2300	N	N	N	N	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	N	N	N	N	N	N	N	N	N
2400	N	N	N	N	N	N	N	N	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	N	N	N	N	N	N	N	N	N	N

TABLE NO. B17

TRANSMITTER: NAA

RECEIVER: Lat. 72.5°N to 77.5°N
Long. 5°W to 15°W

TIME (± 30 Min) Z	JAN 1 10	JAN 11 20	JAN 21 31	FEB 1 10	FEB 11 20	FEB 21 28	MAR 1 10	MAR 11 20	MAR 21 31	APR 1 10	APR 11 20	APR 21 30	MAY 1 10	MAY 11 20	MAY 21 31	JUN 1 10	JUN 11 20	JUN 21 30	JUL 1 10	JUL 11 20	JUL 21 31	AUG 1 10	AUG 11 20	AUG 21 31	SEP 1 10	SEP 11 20	SEP 21 30	OCT 1 10	OCT 11 20	OCT 21 31	NOV 1 10	NOV 11 20	NOV 21 30	DEC 1 10	DEC 11 20	DEC 21 31
0000	N	N	N	N	N	N	N	N	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	N	N	N	N	N	N	N	N	N	N	N
0100	N	N	N	N	N	N	N	N	N	-	-	-	-	-	D	D	D	D	D	D	D	-	-	-	-	N	N	N	N	N	N	N	N	N	N	N
0200	N	N	N	N	N	N	N	N	N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N	N	N	N	N	N	N	N	N	N
0300	N	N	N	N	N	N	N	N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N	N	N	N	N	N	N	N	N	N
0400	N	N	N	N	N	N	N	N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N	N	N	N	N	N	N	N	N
0500	N	N	N	N	N	N	N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N	N	N	N	N	N	N	N
0600	N	N	N	N	N	N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N	N	N	N	N	N	N
0700	N	N	N	N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N	N	N	N	N	N
0800	N	N	N	-	-	-	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	-	-	-	-	N	N	N	N	N
0900	N	N	-	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	-	-	-	N	N
1000	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-
1100	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
1200	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
1300	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
1400	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
1500	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
1600	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-
1700	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-
1800	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-
1900	-	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	-
2000	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	-	-
2100	-	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	-	-	-
2200	-	-	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	N	N	-
2300	N	N	N	N	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	N	N	N	N	N	N	N	N	N
2400	N	N	N	N	N	N	N	N	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	N	N	N	N	N	N	N	N	N	N

SECRET

TABLE NO. B18

TRANSMITTER: NAA

RECEIVER: Lat. 72.5°N to 77.5°N
Long. 5°W to 5°E

TIME (± 30 Min) Z	JAN 1 10	JAN 11 20	JAN 21 31	FEB 1 10	FEB 11 20	FEB 21 28	MAR 1 10	MAR 11 20	MAR 21 31	APR 1 10	APR 11 20	APR 21 30	MAY 1 10	MAY 11 20	MAY 21 31	JUN 1 10	JUN 11 20	JUN 21 30	JUL 1 10	JUL 11 20	JUL 21 31	AUG 1 10	AUG 11 20	AUG 21 31	SEP 1 10	SEP 11 20	SEP 21 30	OCT 1 10	OCT 11 20	OCT 21 31	NOV 1 10	NOV 11 20	NOV 21 30	DEC 1 10	DEC 11 20	DEC 21 31
0000	N	N	N	N	N	N	N	N	N	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	N	N	N	N	N	N	N	N	N	N
0100	N	N	N	N	N	N	N	N	N	-	-	-	-	-	D	D	D	D	D	D	D	-	-	-	-	-	N	N	N	N	N	N	N	N	N	N
0200	N	N	N	N	N	N	N	N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N	N	N	N	N	N	N	N	N	N
0300	N	N	N	N	N	N	N	N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N	N	N	N	N	N	N	N	N
0400	N	N	N	N	N	N	N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N	N	N	N	N	N	N	N	N
0500	N	N	N	N	N	N	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	N	N	N	N	N	N	N	N
0600	N	N	N	N	N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N	N	N	N	N	N	N
0700	N	N	N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N	N	N	N	N	N
0800	N	N	-	-	-	-	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	-	-	-	-	-	N	N	N	N
0900	-	-	-	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	-	-	-	-	N
1000	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-
1100	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
1200	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
1300	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
1400	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
1500	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-
1600	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-
1700	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	-	-
1800	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	-	-	-
1900	-	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	-	-	-	-
2000	-	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	-	-	-	-	-
2100	-	-	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	-	-	-	-
2200	-	-	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	-	-	-	-	-
2300	N	N	N	N	-	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	N	N	N	N	N	N	N	N	N
2400	N	N	N	N	N	N	N	N	N	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	N	N	N	N	N	N	N	N	N	N	N

SECRET

TABLE NO. B19

TRANSMITTER: NAA

RECEIVER: Lat. 72.5°N to 77.5°N
Long. 5°E to 15°E

TIME (± 30 Min) Z	JAN 1 10	JAN 11 20	JAN 21 31	FEB 1 10	FEB 11 20	FEB 21 28	MAR 1 10	MAR 11 20	MAR 21 31	APR 1 10	APR 11 20	APR 21 30	MAY 1 10	MAY 11 20	MAY 21 31	JUN 1 10	JUN 11 20	JUN 21 30	JUL 1 10	JUL 11 20	JUL 21 31	AUG 1 10	AUG 11 20	AUG 21 31	SEP 1 10	SEP 11 20	SEP 21 30	OCT 1 10	OCT 11 20	OCT 21 31	NOV 1 10	NOV 11 20	NOV 21 30	DEC 1 10	DEC 11 20	DEC 21 31
0000	N	N	N	N	N	N	N	N	N	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	N	N	N	N	N	N	N	N	N	N	N
0100	N	N	N	N	N	N	N	N	-	-	-	-	-	-	D	D	D	D	D	D	D	-	-	-	-	-	N	N	N	N	N	N	N	N	N	N	N
0200	N	N	N	N	N	N	N	N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N	N	N	N	N	N	N	N	N	N	N
0300	N	N	N	N	N	N	N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N	N	N	N	N	N	N	N	N	N
0400	N	N	N	N	N	N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N	N	N	N	N	N	N	N	N
0500	N	N	N	N	N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N	N	N	N	N	N	N
0600	N	N	N	N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N	N	N	N	N	N	N
0700	N	N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N	N	N	N	N	N
0800	-	-	-	-	-	-	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	-	-	-	-	-	-	N	N	N	N
0900	-	-	-	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	-	-	-	-	-
1000	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	-
1100	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
1200	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
1300	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
1400	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
1500	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-
1600	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-
1700	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	-
1800	-	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	-	-
1900	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	-	-	-
2000	-	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	-	-	-	-
2100	-	-	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	-	-	-	-	-
2200	-	-	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	N	N	N	-	-
2300	-	-	-	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	N	N	N	N	N	N	N	N	N	N
2400	N	N	N	N	N	N	N	N	N	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	N	N	N	N	N	N	N	N	N	N	N	N

TABLE NO. B20

TRANSMITTER: NAA

RECEIVER: Lat. 72.5°N to 77.5°N
Long. 15°E to 25°E

TIME (± 30 Min) Z	JAN 1 10	JAN 11 20	JAN 21 31	FEB 1 10	FEB 11 20	FEB 21 28	MAR 1 10	MAR 11 20	MAR 21 31	APR 1 10	APR 11 20	APR 21 30	MAY 1 10	MAY 11 20	MAY 21 31	JUN 1 10	JUN 11 20	JUN 21 30	JUL 1 10	JUL 11 20	JUL 21 31	AUG 1 10	AUG 11 20	AUG 21 31	SEP 1 10	SEP 11 20	SEP 21 30	OCT 1 10	OCT 11 20	OCT 21 31	NOV 1 10	NOV 11 20	NOV 21 30	DEC 1 10	DEC 11 20	DEC 21 31
0000	N	N	N	N	N	N	N	N	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	N	N	N	N	N	N	N	N	N	N
0100	N	N	N	N	N	N	N	N	-	-	-	-	-	-	D	D	D	D	D	D	D	-	-	-	-	-	N	N	N	N	N	N	N	N	N	N
0200	N	N	N	N	N	N	N	N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N	N	N	N	N	N	N	N	N
0300	N	N	N	N	N	N	N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N	N	N	N	N	N	N	N
0400	N	N	N	N	N	N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N	N	N	N	N	N	N
0500	N	N	N	N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N	N	N	N	N	N
0600	N	N	N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N	N	N	N
0700	N	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	N
0800	-	-	-	-	-	-	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
0900	-	-	-	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	-	-	-	-	-
1000	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-
1100	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
1200	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
1300	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
1400	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-
1500	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-
1600	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-
1700	-	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	-	-
1800	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	-	-
1900	-	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	-	-	-
2000	-	-	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	-	-	-	-
2100	-	-	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	-	-	-	-
2200	-	-	-	-	-	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	-	-	-	-	-	-	N	N
2300	N	N	N	N	-	-	-	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	N	N	N	N	N	N	N	N	N
2400	N	N	N	N	N	N	N	N	N	-	-	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-	N	N	N	N	N	N	N	N	N	N

REFERENCES

1. NRL Research and Development Program for the Fleet Ballistic Missile, J. P. Barry, F. Wertheimer, and E. St. Clair, NRL Memorandum Report 1077, 27 Jul 1960, Secret.

2. "The Mode Theory of VLF Ionospheric Propagation for Finite Ground Conductivity", by J. R. Wait, Proc IRE Vol. 45, No. 6 June 1957, pp 760-767, Uncl.

3. Some VLF Field Strengths Recorded in the Vicinity of Proposed Polaris Launching Areas, by W. E. Garner, and F. J. Rhoads, NRL Memorandum Report 1061, 10 June 1960, Conf.

4. Field Strengths of Some VLF Transmissions and Atmospheric Noise Measured in European Areas-March, April, and May 1959 by W. E. Garner, F. J. Rhoads, E. J. Elwood, III, and R. L. Schauer, NRL Memorandum Report 1104, 10 Oct 1960, Conf.

5. Field Strengths of Some VLF Transmissions and Atmospheric Noise Measured in European Areas--June, July, and August 1959, by W. E. Garner, F. J. Rhoads, E. J. Elwood, III, and R. L. Schauer, NRL Memorandum Report 1126, 15 Mar 1961, Conf.

6. Field Strengths of Some VLF Transmissions and Atmospheric Noise in European and Asian Areas-September, October and November 1959, by W. E. Garner, F. J. Rhoads, E. J. Elwood, III, and R. L. Schauer, NRL Memorandum Report 1164, 17 May 1961, Conf.

7. "Power Requirements and Choice of an Optimum Frequency for a Worldwide Standard-Frequency Broadcasting Station", by A. D. Watt and R. W. Plush, Journal of Research of the National Bureau of Standards, Vol 63D, No. 1, July-Aug 1959.

8. Arctic Atmospheric Noise and Propagation Studies-Part A: Arctic Sferic Data--August 1958 to Mar 1959, by A. L. Whitson, Stanford Research Institute, Feb 1960.

-- 1 OF 1
-- 1 - AD NUMBER: 382413
-- 2 - FIELDS AND GROUPS: 25/2
-- 3 - ENTRY CLASSIFICATION: UNCLASSIFIED
-- 5 - CORPORATE AUTHOR: NAVAL RESEARCH LAB WASHINGTON D C
-- 6 - UNCLASSIFIED TITLE: PREDICTION OF FIELD STRENGTHS OF NSS AND
-- NAA VLF TRANSMISSIONS.
-- 8 - TITLE CLASSIFICATION: UNCLASSIFIED
-- 9 - DESCRIPTIVE NOTE: INTERIM REPT.,
--10 - PERSONAL AUTHORS: GARNER,W. E. ;RHOADS,F. J. ;ELWOOD,E. J. , III;
-- SCHAUER,R. L. ;
--11 - REPORT DATE: 28 JUN 1961
--12 - PAGINATION: 80P MEDIA COST: $ 7.00 PRICE CODE: AA
--14 - REPORT NUMBER: NRL-MR-1184
--20 - REPORT CLASSIFICATION: [redacted]
--22 - LIMITATIONS (ALPHA): DISTRIBUTION: DOD ONLY: OTHERS TO
-- DIRECTOR, NAVAL RESEARCH LAB., WASHINGTON, D. C. 20390.
--23 - DESCRIPTORS: (*RADIO TRANSMISSION, VERY LOW FREQUENCY),
-- PREDICTIONS, RELIABILITY(ELECTRONICS), STATISTICAL DATA, RADIO
-- RECEPTION, POWER SPECTRA, ATMOSPHERICS, RADIO INTERFERENCE
--24 - DESCRIPTOR CLASSIFICATION: UNCLASSIFIED
--29 - INITIAL INVENTORY: 1
--32 - REGRADE CATEGORY: C

-
--33 - LIMITATION CODES: 4
--35 - SOURCE CODE: 251950
--36 - ITEM LOCATION: DTIC
--38 - DECLASSIFICATION DATE: OADR
--40 - GEOPOLITICAL CODE: 1100
--41 - TYPE CODE: N
--43 - IAC DOCUMENT TYPE:

Naval Research Laboratory
Technical Library
Research Reports Section

DATE: June 19, 2002

FROM: Mary Templeman, Code 5227

TO: **Code 5300 Paul Hughes** ft 6/21/02
CC: Tina Smallwood, Code 1221.1

SUBJ: Review of NRL Reports

Dear Sir/Madam:

1. Please review NRL MR –1184, MR-1193, MR-1417, MR-1571, MR-1595, MR-1635, and MR-1667 for:

   ☑ Possible Distribution Statement
   ☑ Possible Change in Classification

Thank you,

Mary Templeman

Mary Templeman
(202)767-3425
maryt@library.nrl.navy.mil

The subject report can be:

☑ Changed to Distribution A (Unlimited)
☑ Changed to Classification Unclassified
☐ Other:

Paul K Hughes II 6/21/02

Signature Date